Gamatronic Electronic Industries Ltd.

µPS Series 3:3 Phase

10κVA (GEMS)

User Guide and Instruction Manual

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1. SAFETY PRECAUTIONS

1.1 Do's

- Read this manual carefully before starting installation and operation of the UPS.
- Review the safety precautions described below to avoid injury to users or damaging equipment.
- All power connections must be completed by a licensed electrician who is experienced in wiring this type of equipment, and who is knowledgeable about all federal, state, and local electrical codes and regulations. **Improper wiring may cause damage to the equipment or injury to personnel.**
- Pay attention to the warning signs, labels and marks on the unit. A warning sign signals the presence of a possibly serious, life-threatening condition.
- Allow only qualified technicians to service the UPS. There are no user-serviceable components. **Do not try to repair it yourself!**
- Use the UPS only for its intended purpose.

WARNING

RISK OF LETHAL ELECTRIC SHOCK. The battery cabinet contains a series of 12-Volt batteries that provide high voltage and energy in the UPS body even when the UPS is not connected to the electricity mains. Appropriate precautions should be taken during installation, inspection and servicing.

1.2 Don'ts

- Do not open the cover of the UPS under any circumstances. All UPS panels and doors should be closed.
- Do not insert any objects through the ventilation holes.
- Do not put objects on the UPS.
- Do not move the UPS while it is operating.
- Do not turn the UPS upside down during transportation.
- Do not connect or disconnect the cable to the battery cabinet before the battery circuit breaker is turned OFF.
- Do not turn ON the battery circuit breaker when the battery cabinet is disconnected from the UPS.
- Do not install next to any gas or electrical heaters. A restricted location is recommended in order to prevent access by unauthorized personnel.

2. GENERAL FEATURES

The µPS Series 3/3 Phase Uninterruptible Power Supply (UPS) employs Pulse Width Modulation (PWM) and is controlled by a 16-bit micro-controller, to provide reliable, sophisticated protection for every type of line fluctuation, including interruption of the mains (electrical) supply.

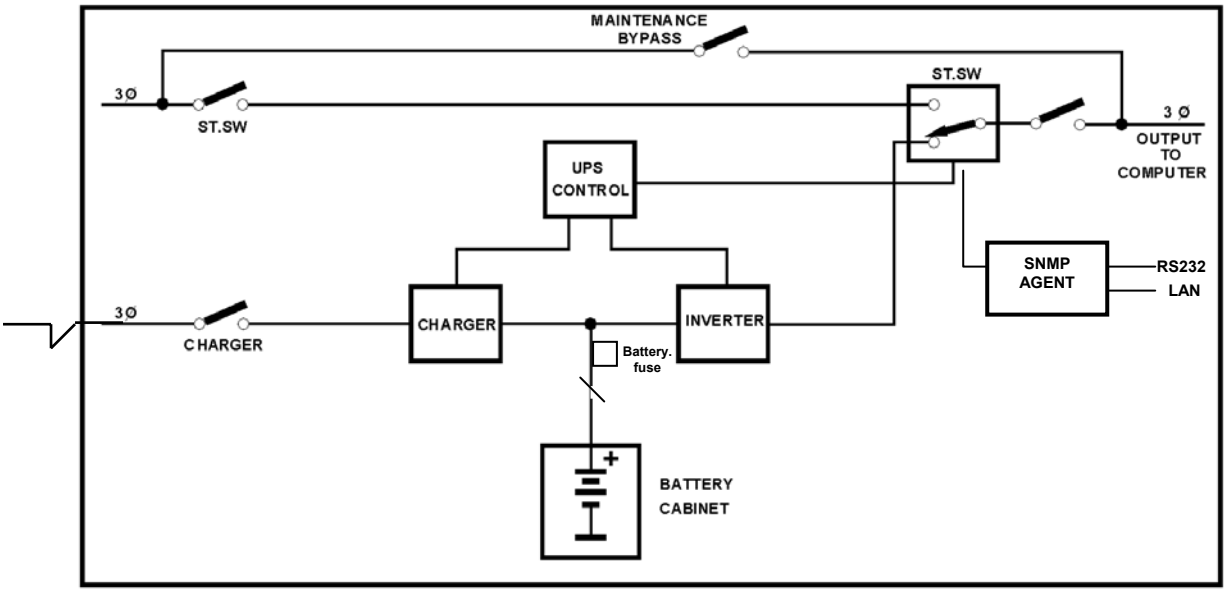


Figure 1: Block Diagram of the UPS's Operation

In case of a power failure, the UPS provides backup power for a specific period.

The system is user friendly. Its operation is simple and requires no previous technical knowledge. The UPS operates on-line and, once activated, provides voltages of 3×208Vac at a stabilized 50 or 60 Hz frequency—depending upon your configuration—to load.

When backup service is provided (upon mains power failure), the UPS is powered by batteries and maintains a constant output voltage supply. The system informs the operator, by means of LED indicators and audible signals, when a power failure occurs.

The UPS is equipped with a Static Switch (ST/SW) that enables the load(s) device(s) to continue normal operation when the inverter is unable to supply exceptionally heavy loads, such as during power surges, or in case of inverter failure—for any reason.

An LCD display on the UPS front panel provides complete, real time information reflecting the UPS's operational status.

- Using an RS232C communications port, similar status information may be viewed on a computer.

2.1 Major Subsystems

The device consists of the following modules:

2.1.1 Charger

The charger supplies a stabilized voltage to the device at 176Vdc ± 2V.

2.1.2 Batteries

The batteries are connected to the charger output and supply voltage during power failures. Batteries are housed within the UPS.

2.1.3 Inverter

The inverter receives a DC voltage from the charger or batteries and supplies a regulated, frequency-stabilized, AC voltage (power). The inverter incorporates an IGBT transistorized bridge, driver, (PC968 card), an L-C filter circuit, isolated output transformer circuit, current transformer, PC075 card, and a PC871 PWM control card.

2.1.4 Static Switch (ST/ SW / BYPASS)

The ST/SW/ bypass transfers the load to the mains if the inverter is unable to supply the demand (e.g., excess current, inrush current on connecting the load, inverter malfunction, etc.). To ensure correct operation of the static switch, the inverter is synchronized with the mains in both, frequency and phase. The Static Switch includes a PC690 card and RA101, RA102 relays.

2.1.5 Control System

The control system performs the following functions:

- Tests input, bypass, inverter, battery voltage, output current, input/output signal frequency, and temperature.
- Controls the inverter and the bypass contactor (RA101) and manages the static switch and charger voltage during battery tests.
- Controls the ALARM interface.

- Controls the panel keyboard reading and sends messages to the front panel LCD display.
- Communicates with devices via the RS232C interface.

The control system includes the PC901 microprocessor card, PC950 panel card, analog-to-digital converter (A/D) PC971 cards, PC973 power supply, current, and temperature sensors.

2.2 Control Panel

The UPS is equipped with an LCD display and touch pad control panel that enable the user to effectively manage the UPS. Once the UPS is installed, the control panel serves as the user's primary interface with the system. Messages, warnings and error conditions are relayed to the user through the control panel's LCD display and through audible alarms.

Figure 2: Control Panel for Model 10kVA

(Displays R phase only)

2.3 Power-On Self Tests

The UPS automatically performs a series of diagnostic tests when initially powered on.

2.4 Measurement

The user can receive real-time information regarding the unit's operation and condition simply by pressing the appropriate status button. The real-time results are displayed on the front panel, as shown in Figure 3.

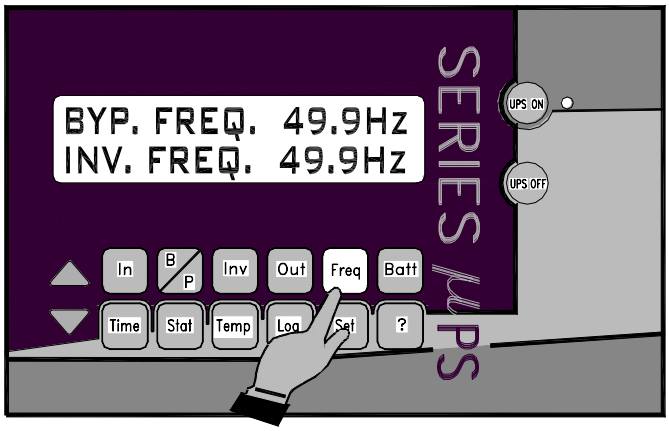


Figure 3: Sample Front Panel

2.5 Real Time

The system includes a real-time clock and calendar that sequentially manage the log file and provide historical data to the user. This information is accessible via the LCD display or, optionally, through the RS232 communications port.

2.6 Communications

The UPS relays all the measured data and events of the log file through an RS232C communications port to a host computer or, using a modem connected to a telephone line, to a remote location.

2.7 Log

The system compiles a listing of up to 200 extraordinary events of the mains, unit and load during operation. This data is written to the log file and can be accessed easily at any time through the display panel, computer, or via modem. This information is extremely useful for maintenance and analyzing performance statistics.

2.8 Ease Of Use

The UPS includes an on-line help feature that explains the system's features and describes each of the LCD control buttons.

2.9 Battery Check

The unit automatically and continuously checks the battery bank connection with the UPS.

2.10 Service Mode

The UPS has a technician's SERVICE MODE that is password protected. Access to the service mode is permitted only after the technician successfully enters the correct password.

2.11 Connections

The terminal connectors are located on the back of the UPS. The user must remove the terminal connectors' protective cover using a screwdriver for access.

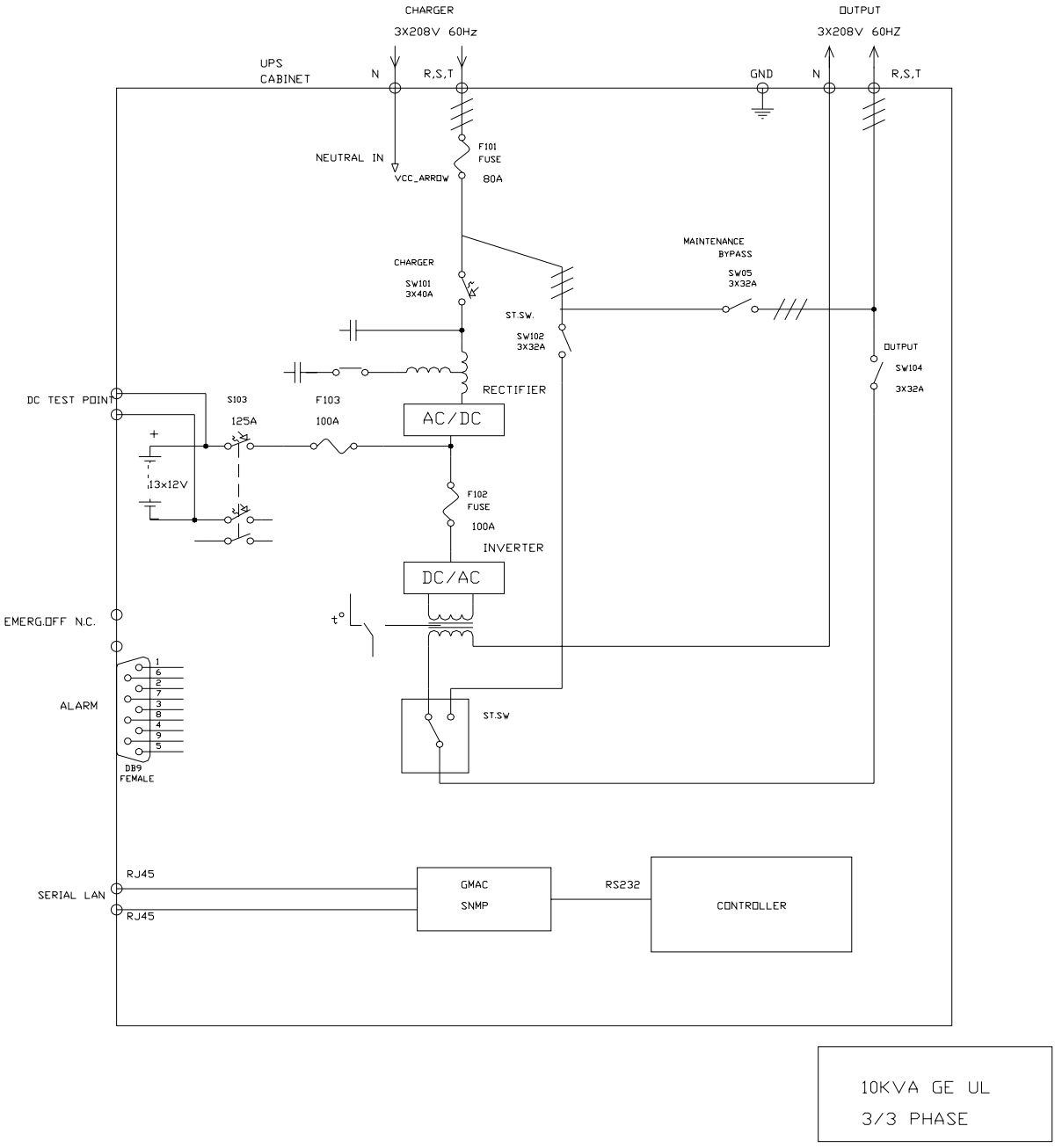


Figure 4: Schematic Drawing

3. INSTALLATION AND SETUP

3.1 Safety Precautions

3.1.1 Do's

- Read all instructions carefully before operating the UPS.
- Review the safety precautions described below to avoid potential damaging users or equipment.
- Use the UPS only for its intended purpose.
- All power connections must be completed by a licensed electrician who is experienced in wiring this type of equipment, and who is knowledgeable about all federal, state, and local electrical codes and regulations. **Improper wiring may cause damage to the equipment or injury to personnel.**
- Allow only qualified technicians to service the UPS. There are no user-serviceable components. **Do not try to repair it yourself!**

WARNING

RISK OF LETHAL ELECTRIC SHOCK. The battery cabinet contains a series of 12V batteries that provide high voltage and energy in the UPS body even when the UPS is not connected to the electricity mains. Appropriate precautions should be taken during installation, inspection and servicing.

3.1.2 Don'ts

- Do not remove the UPS cover under any circumstances.
- Do not insert any objects through the ventilation holes.
- Do not put objects on the UPS.
- Do not move the UPS while it is operating.
- Do not turn the UPS upside down during transportation.
- Do not connect or disconnect the cable to the battery cabinet before the battery circuit breaker is turned OFF
- Do not turn the battery circuit breaker ON when the battery cabinet is disconnected from the UPS.
- Do not install next to any gas or electrical heaters. A restricted location is recommended in order to prevent access by unauthorized personnel.

3.2 Site Preparations

CAUTION!

- Electrical codes may vary according to location. Observe all local, state, and federal electrical codes for acceptable external wiring practices**.**
- If the UPS is not installed according to the instructions in this manual, it may interfere with radio communications equipment. The UPS has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of the FCC rules, which are designed to provide reasonable protection when operated in a commercial environment.
- Operation of this equipment in a residential area may cause radio frequency interference, in which case the user will be required at his own expense to take whatever measures may be necessary to shield the UPS.

3.2.1 Installation Considerations

1. Use the shortest possible output distribution cable runs at the installation site, consistent with logical equipment arrangements and in compliance with NEC and local electrical codes. Allow space for additional future equipment.
2. The recommended ambient temperature for operation is 20-30°C (68-86°F). Humidity must be less than 95% non-condensing. In altitudes above 2000 meters (6560 feet), the UPS rating will be reduced.
3. The route and foundation to the installation site must be capable of supporting the weight of cabinets and moving equipment. Plan the route to ensure that the unit will pass through all elevators, corners, and doorways to prevent damage. Refer to Table 1: Dimensions & Weights on page 10 for specific information about cabinet size and weight.
4. Place electrical equipment (load, computer monitor, etc.) at least one meter away from the UPS.
5. Heat generated by the UPS equipment is significant. Make sure that environmental conditioning systems can accommodate this heat load, even during utility outages.

Table 1: Dimensions & Weights

DIMENSIONS & WEIGHTS µPS Series 3:3 Phase, 10kVA, GE Model	
Height	38 in (95 cm)
Width	16.4 in (41 cm)
Depth	33.6 in (84 cm)
Weight (with batteries)	638 lb (290 kg)
Dissipation (W) at full load (1W = 3.4 Btu)	880W (2992 Btu)

3.2.2 Equipment Location

1. Castors on the unit ease final positioning.
2. As with all electrical equipment, installation and serviceability will be easier if access is provided on all sides of the equipment.
3. Verify adequate clearance around cabinet to allow unrestricted exhaust air to flow (12 inches minimum).
4. Verify that the UPS system is installed in a clean, cool, and dry location.

3.2.3 Electrical Wiring

1. Verify that power wiring is run in an individual separate conduit or cable tray. Verify that control wiring is run in an individual separate conduit.
2. For minimum conductor size, refer to Table 2 on page 11**,** which has been prepared in accordance with NEC requirements. (Please check your local electrical codes to ensure compliance with the given grades.)

3.2.4 Seismic Anchoring Kit (Optional)

An optional seismic anchoring kit is available for the UPS that provides protection against earthquakes when using the UPS in areas subject to seismic events. The kit enables you to securely anchor the UPS to the floor, in compliance with federal recommendations for bracing heavy equipment in earthquake zones.

When installing the seismic anchoring kit, the following site considerations should be met:

1. The UPS should be anchored to a solid concrete floor that is strong enough to support the anchor bolts.
2. The surface to which the UPS is anchored should be free of interference from utility supplies or electrical conduits.

Table 2: Ratings & External Wiring Requirements

RATINGS & EXTERNAL WIRING REQUIREMENTS **µPS SERIES 3:3 PHASE, 10kVA, 60Hz GE MODEL**					
Basic unit ratings at full load		**kVA/kW**	**Voltage Input (Volts)**	**INPUT CURRENT (AMPS)**	**CONDUCTOR MINIMUM SIZE**
AC INPUT	**AC Input to UPS** Full Load Current 3Ø, (1) Neutral, (1) gnd	-	208	38	(5) x 8AWG
AC OUTPUT	**UPS AC Output** Full Load Current 3Ø, (1) Neutral, (1) gnd	10/8	208	27.8	(5) x 10AWG
PE GND		-	-	-	4AWG
EPO EMERGENCY POWER OFF		-	-	-	(2) x 18AWG

Read the following carefully prior to starting installation :

1. Observe all local, state and federal electrical codes for acceptable external wiring practices.
2. Material and labor for external wiring requirements are to be provided by designated personnel.
3. For external wiring, use 90°C copper wire. See the appropriate columns in Tables A and B.
4. Wire gauges are selected from Table 310-16 of the NEC.
5. Verify that all incoming high and low voltage power circuits are de-energized and locked out before installing cables or making any electrical connections.
6. All power should be turned OFF before any cables or wires are installed or connected. A qualified individual should check to ensure that the power is OFF.
7. Power and control wires must be separated.
8. Verify that utility power and its over-current protection rating will accommodate the UPS input rating, including batteries recharging.
9. A safety ground wire must be run from the building ground to the ground point of the UPS module. The grounding conductor shall comply with the following properties:
   - The insulated grounding conductor is identical in size, insulation material and thickness to the grounded and ungrounded branch circuit.
   - The grounding conductor is to be grounded to earth at the service equipment or, if supplied by a separately derived system, at the supply transformer or motor generator set.
   - The attachment plug receptacles in the vicinity of the unit or system are all to be of a grounding type, and the grounding conductors serving these receptacles are to be connected to earth ground at the service equipment.
   - Observe clockwise phase rotation of all power wiring. Phase A leads phase B leads Phase C. A qualified electrician should check the phase rotation.
10. NEC Class 1 wiring methods are required for control and communications (Class 2) circuits.

3.2.5 UPS Communications (Optional)

The UPS is supplied with an optional internal communications card (GmaC), which allows you to continuously monitor and control systems connected to a PC from a local or a remote location. Access to this card is from the back of the UPS. See Section 10 *GMAC (Gamatronic Management Card)*, on page 49.

To prepare the site for GmaC communications capabilities:

1. Install an Ethernet RJ45 communications outlet next to the UPS. The outlet must be connected to the Local Area Network (LAN).
2. Supply a standard Ethernet Category 5 cable of the length necessary to connect the UPS to the Ethernet (RJ45) outlet.

3.3 Installation Process

CAUTION!

- Only an authorized electrician may perform installation. Do not attempt to perform any of the following instructions on your own.
- Electrical codes may vary according to location. Observe all local, state, and federal electrical codes for acceptable external wiring practices**.**
- If the UPS is not installed according to the instructions in this manual, it may interfere with radio communications equipment. The UPS has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of the FCC rules, which are designed to provide reasonable protection when operated in a commercial environment.
- Operation of this equipment in a residential area may cause radio frequency interference, in which case the user will be required at his own expense to take whatever measures may be necessary to shield the UPS.

Read and understand the following procedure before planning your installation.

3.3.1 External Inspection

1. Inspect equipment and shipping containers for any signs of shipping damage or mishandling. Do not attempt to install the system if damage is apparent. If any damage is noted, file a damage claim with the shipping agency within 24 hours and contact your Gamatronic authorized service representative to inform them of the damage claim and the condition of the equipment.
2. Check for loose connections or unsecured components in the UPS module.
3. Check for any unsafe feature that may present a potential safety hazard.

Figure 5: UPS Rear Panel View (Protective Coverings Removed) With Optional Seismic Anchoring

3.3.2 Seismic Anchoring (Optional)

When installing the UPS in an earthquake zone, the UPS must be securely anchored against seismic occurrences prior to initial installation and startup. An optional seismic anchoring kit is available from Gamatronic.

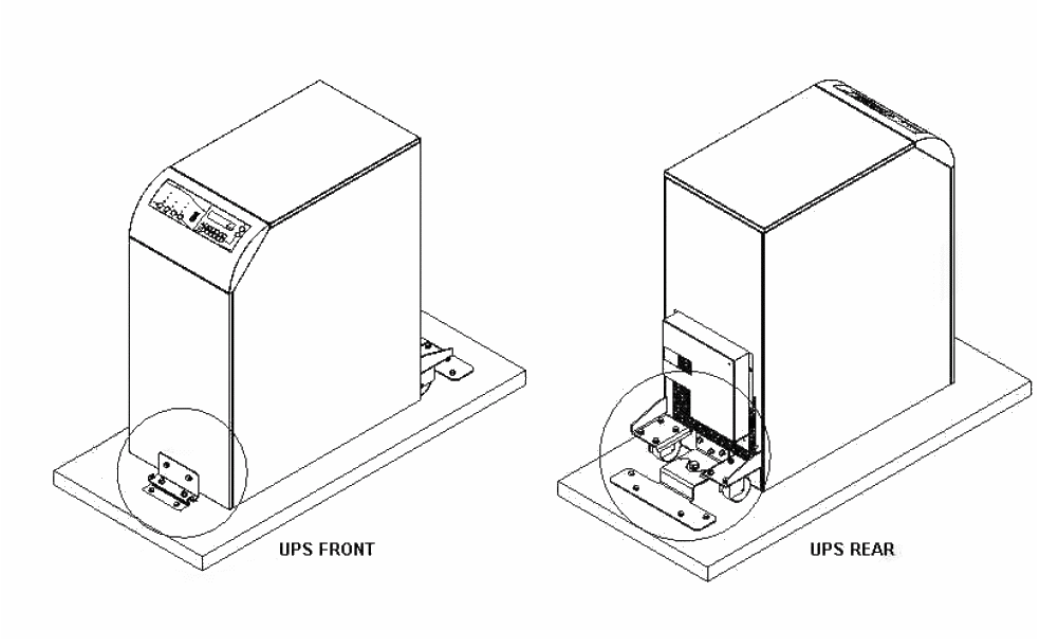


Figure 6: UPS Anchored Against Seismic Occurrences

Table 3 lists the seismic anchoring kit parts, illustrated in Figure 7: Seismic Anchoring Kit Parts and Figure 8: UPS Holder:

Table 3: Seismic Anchoring Kit - Parts List

ITEM	PART NAME	QTY	PART NO.	CATALOG NO.
1	UPS Rear Mounting Bracket	1	GE-UPS-10kVA-40-00	2MCM510QJ
2	Rear Angle Bracket	1	GE-UPS-10kVA-41-00	2MCM510FE
3	UPS Holder	1	GE-UPS-10kVA-42-00	2MCM510FF
4	UPS Front Mounting Bracket	1	GE-UPS-10kVA-43-00	2MCM510QL
5	Bracket Assy. Cover	1	GE-UPS-10kVA-44-00	2MCM510QK
6	Hex Bolt – 5/16” 18 UNC-0.75”	7		2ZZHED
7	Spring Washer– 5/16”	7		2ZZSE
8	Washer – 5/16”	7		2ZZLE
9	Hex Bolt – ½” 13 UNC-1”	1		2ZZHGH
10	Spring Washer – ½”	1		2ZZSG
11	Washer – ½”	1		2ZZLG
12	Phillips Screw 8-32 ½”	2		2ZZPOE
13	Spring Washer 8-32	2		2ZZSO
14	Washer 8-32	2		2ZZSQ
15	Expansion Anchor Bolts 3/8” X 2.5”	6		2ZZHFL

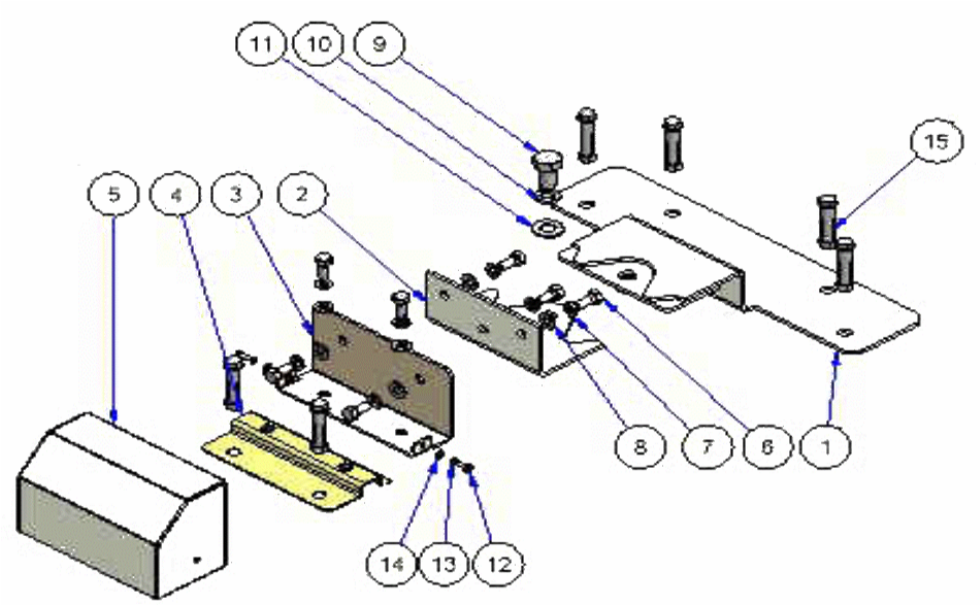


Figure 7: Seismic Anchoring Kit Parts

To install the seismic anchoring kit:

1. Attach the UPS holder (item #3) to the front of the UPS using two 5/16” hex bolts (item #6). (See Figure 8.)

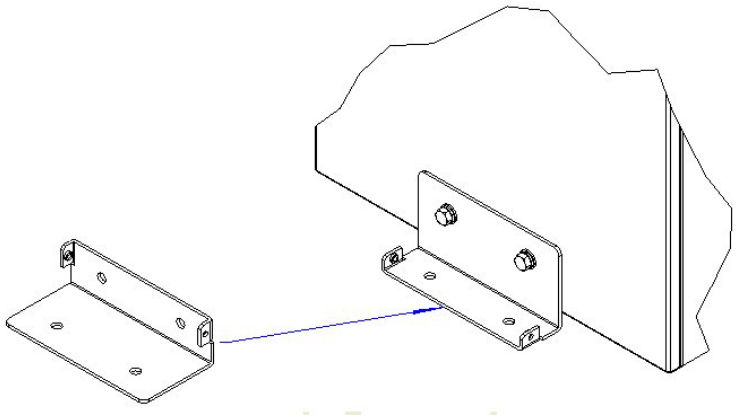


Figure 8: UPS Holder

2. Attach the rear angle bracket (item #2) to the back of the UPS using three 5/16” hex bolts (item #6). (See Figure 9.)

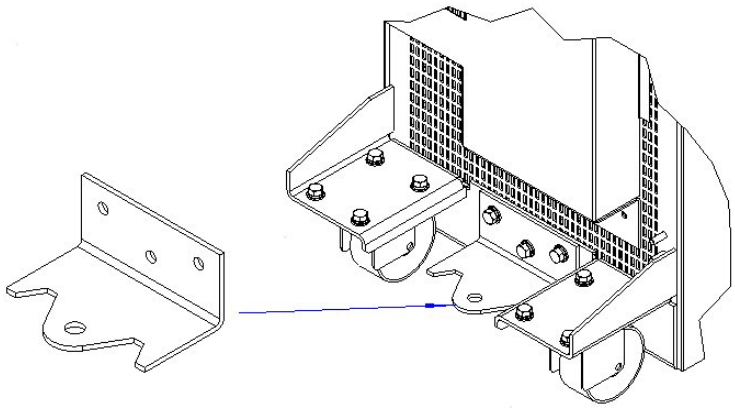


Figure 9: Rear Angle Bracket

3. Attach the front mounting bracket (item #4) to the UPS holder using two 5/16" hex bolts (item #6). (See Figure 10.)

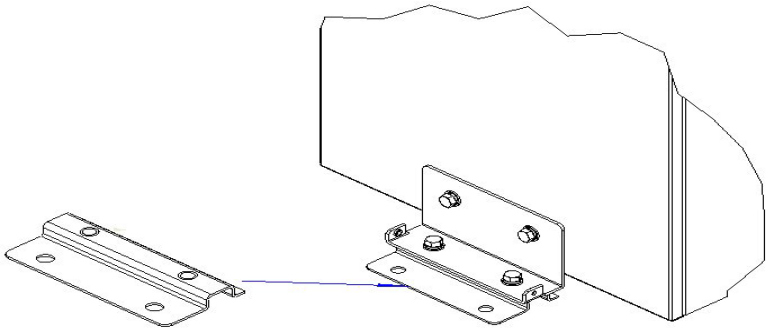


Figure 10: Front Mounting Bracket

4. Attach the rear mounting bracket (item #1) to the rear angle bracket using the ½" hex bolt (item #9). (See Figure 11.)

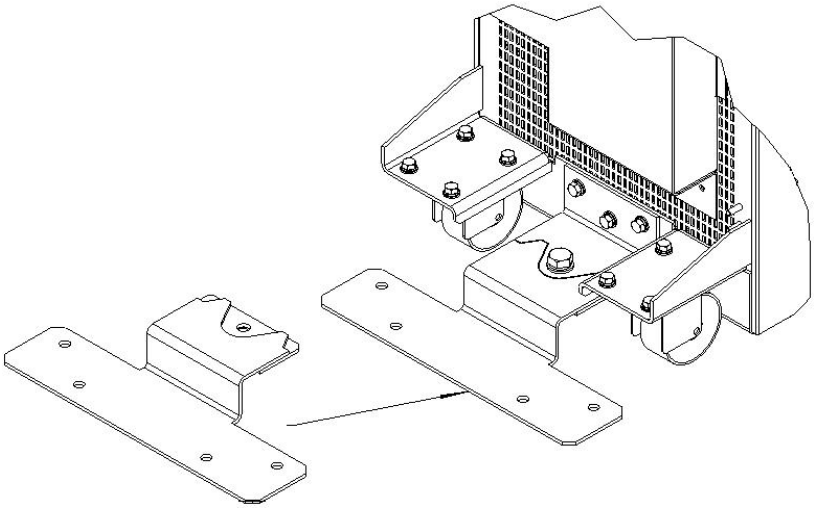


Figure 11: Rear Mounting Bracket and Rear Angle Bracket

5. Position the UPS in its final location.
6. Drill an11mm hole in the floor at the location of each anchor bolt. (Drill bit not included.)
7. Bolt the front mounting bracket to the floor using 3/8” expansion anchor bolts (item #15). (See Figure 12.)

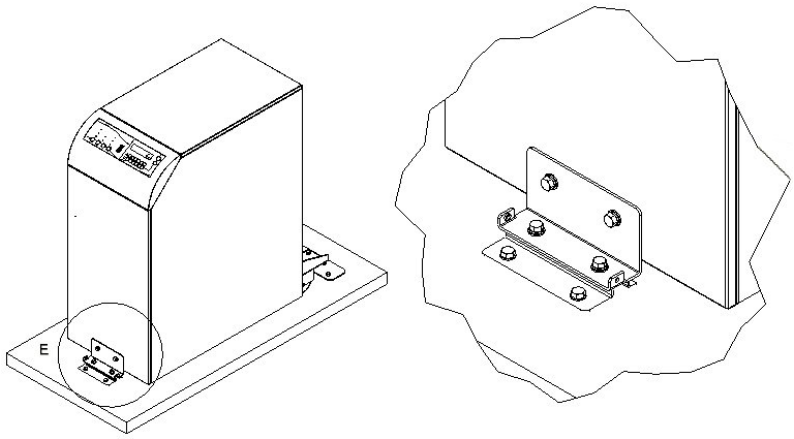


Figure 12: Front Mounting Bracket

8. Bolt the rear mounting bracket to the floor using 3/8” expansion anchor bolts (item #15). (See Figure 13.)

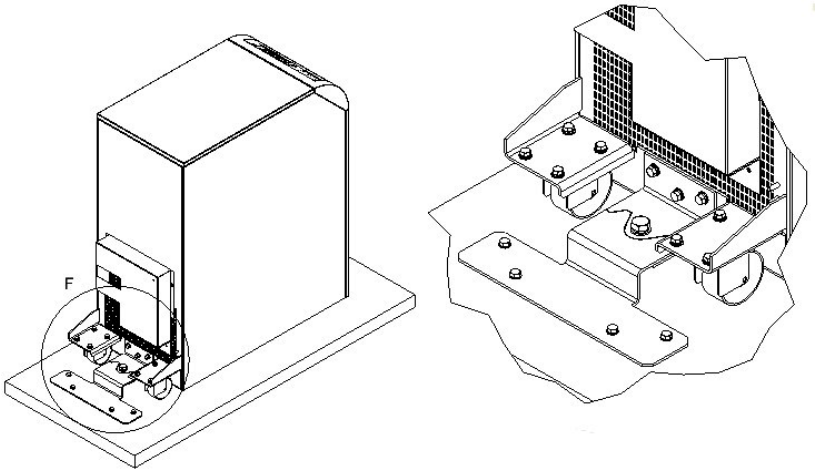


Figure 13: Rear Mounting Bracket

9. Attach the bracket cover (item #5) to the front mounting bracket using the two Phillips screws (item #12). (See Figure 14.)

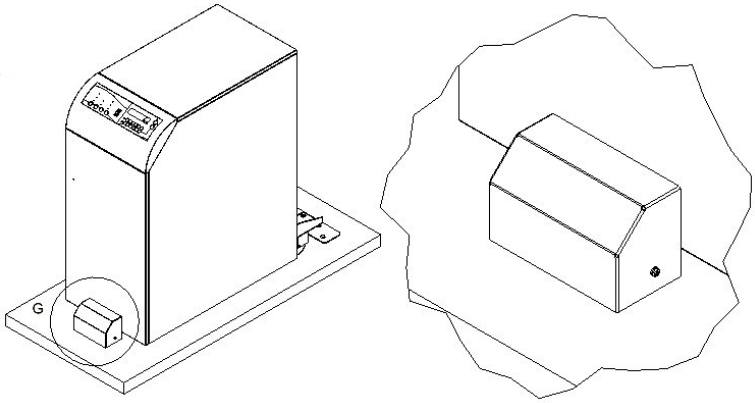


Figure 14: Bracket Cover

3.3.3 Preparation for Initial Start-Up

To prepare the UPS for initial start-up:

1. The UPS has five main circuit breakers, at the rear of the unit.
   - INPUT CHARGER
   - ST/SW (Static-Switch)
   - OUTPUT
   - BATTERY C.B. (in horizontal position)
   - MAINTENANCE BYPASS (covered by a separate metal plate)

   Verify that ALL the circuit breakers are turned OFF and that the protective covers have not been removed (see Figure 15).

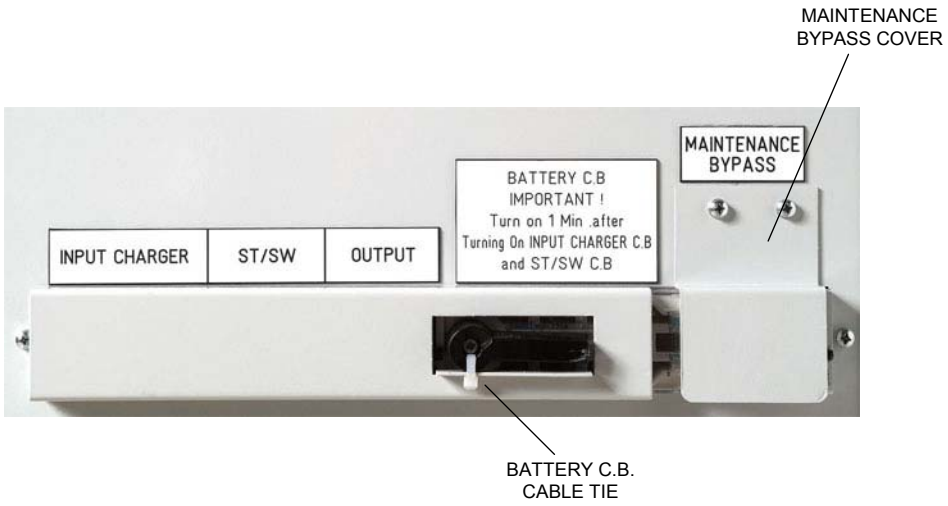


Figure 15: UPS Circuit Breakers with Protective Covers

2. Verify that the circuit breaker in the mains electrical cabinet supplying the UPS is OFF. No voltage should exist in the cables.

Figure 16: Terminal Connections with Protective Cover

3. Terminals are located on the back of the UPS unit. Remove the protective cover, shown in Figure 16.

4. Connect the UPS unit wiring, as shown in Figure 17, using the grades of wire specified in Table 2: Ratings & External Wiring Requirements, on page 11. (Please check your local electrical codes to verify compliance with the given grades.)

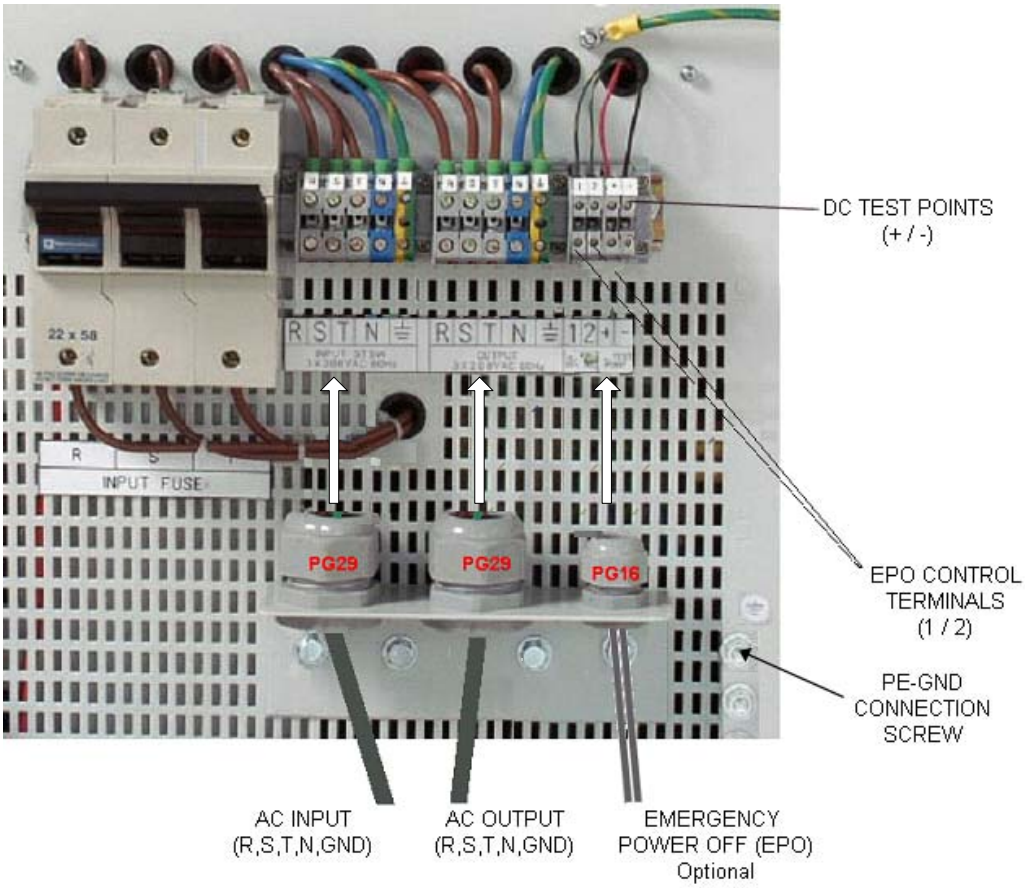


Figure 17: Electrical Cabinet Terminal Connections

5. Connect the PE-GND cable to the PG-GND screw, shown in Figure 17.
6. Run the AC output cable through the center cable holder (PG29), shown in Figure 17. Refer to Table 4 for dimension details.
7. For EPO connection, run the cable through the cable holder on the right (PG16), shown in Figure 17. Refer to Table 4 for dimension details.
8. Run the AC input cable through the left cable holder (PG29), shown in Figure 17. Refer to Table 4 for dimension ranges.
9. Tighten all cable holders so that the cables are fastened securely.

Table 4: Cable Holder Dimensional Details

CABLE HOLDER DIMENSIONAL DETAILS µPS Series 3:3 Phase, 10kVA, GE Model	
Thread Type	**Range**
PG21	0.545in – 0.709in (10mm – 14mm)
PG29	0.708in – 0.984in (14mm – 25mm)

3.3.4 Verifications Prior to Operation

1. Verify that the AC input cables from the external power source to the UPS Input are connected and fastened securely. (Follow and verify the phase sequence.)
2. Verify that the AC output cables from UPS to the load are connected and fastened securely. (Follow and verify the phase sequence.)
3. Verify that any additional special control wiring is run in individual, separate conduits.
4. Verify that all power connections are tight.
5. Verify that all control wire terminations are tight.
6. Verify that all power wires and connections have proper spacing between exposed surfaces, phase-to-phase, and phase-to-ground.
7. If connected, verify that the EPO control wiring is run in an individual, separate rigid conduit to the EPO switch. (See Figure 17, on page 21.)
8. Verify that the PE-GND cable is connected and fastened securely.
9. **Recommendation:** Using a voltmeter, measure the voltage in the charger's terminal block (rear panel of the UPS). The expected values are as follows:
   a. Between phases (R,S,T) to N (Neutral): 120Vac ±10%.
   b. Between Phases (R,S,T): 208Vac ±10%.
   c. Between Neutral to Ground (Earth): less than 1.5V.
10. Replace the protective cover on the terminal connectors (see Figure 16 on page 20).

CAUTION!

Verify that the grounding cable is connected to the protective cover of the terminal connectors prior to placing it back on the UPS.

3.3.5 Feeding the Load through the Maintenance Bypass

WARNING

After the following procedure is performed, voltage will exist on the UPS Output.

After the UPS has been installed, if essential, it is possible to feed the load from the external power source by operating the MAINTENANCE BYPASS C.B. without operating the UPS unit:

1. Remove the cover of the **MAINTENANCE BYPASS** C.B. (see Figure 15 on page 19.) Place the cover and screws in a secure place for future use. All other circuit breakers should remain OFF, with their protective cover intact.

   Note: The Auxiliary switch, located next to the MAINTENANCE BYPASS, functions as a safety circuit breaker. In the event that both the MAINTENANCE BYPASS and INPUT CHARGER circuit breakers are turned ON simultaneously during UPS operation, the Auxiliary switch trips and shuts OFF the MAINTENANCE BYPASS C.B..

2. Inform the customer that you are about to connect power to the load.
3. Verify with the customer that the main switch of the load is turned OFF.
4. When given permission to do so, turn the MAINTENANCE BYPASS C.B. ON.

Figure 18: MAINTENANCE BYPASS C.B. in OFF Position

5. Replace the cover over the MAINTENANCE BYPASS C.B..
6. Verify that the other CBs are covered , secured with a cable tie to the battery CB lever and switched OFF. See Figure 15, on page 19.

DO NOT ATTEMPT TO SWITCH THE UPS ON TO OPERATE THE UPS.

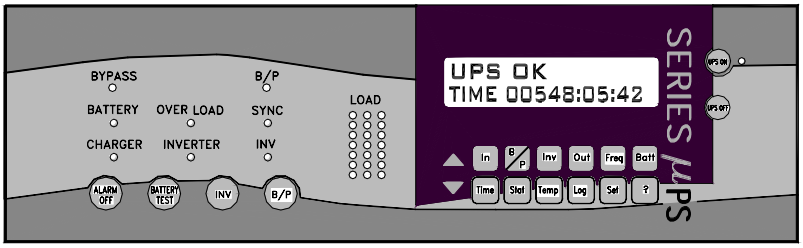
After installation is complete, contact your Gamatronic authorized service representative to schedule inspection and startup of the UPS.

4. CONTROL PANEL & INDICATORS

4.1 LCD Control Panel

The control panel serves as an interface between the UPS and the user. It displays real-time information and allows the user to monitor and control the functions of the UPS.

The control panel has six round function buttons for controlling the unit and 12 square information buttons for monitoring the UPS status. Text information is displayed on the LCD and may be emphasized with audible alerts to notify the user of extraordinary circumstances. In addition, the LED indicators provide information at a glance regarding the UPS status or operation.

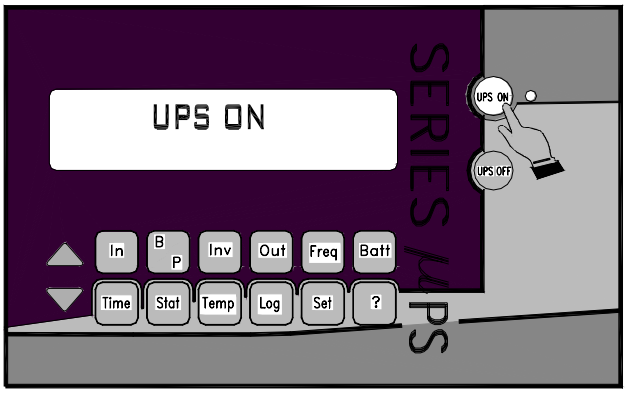


4.2 Function Buttons

The function buttons are positioned to the left and right sides of the Control Panel.

UPS ON

Turns the UPS ON and sequentially displays the start-up diagnostic results.

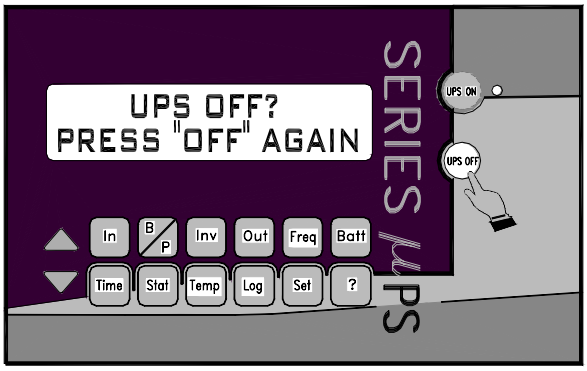


The unit performs the following system checks when powered on:

- Input voltage
- Voltage and frequency of bypass and inverter
- Battery status
- Synchronization between inverter and bypass signals
- Constant updating of display panel information
- Memory (RAM, EPROM, EEPROM)
- Real-time clock
- Analog/digital converters
- Keyboard
- Interface chip
- Modem connection and configuration

UPS OFF

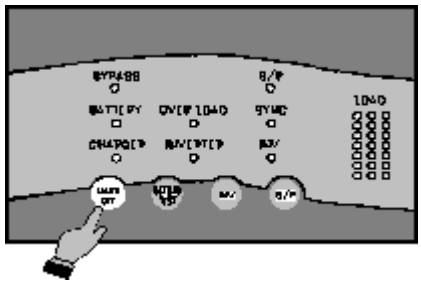
Shuts the UPS OFF. The unit requires confirmation of this action. Wait approximately 2 seconds and confirm your selection by pressing the UPS OFF button again.



Caution: This operation disconnects the UPS AC output from the load.

ALARM OFF

Pressing the ALARM OFF button silences the alarm that sounds during a system fault.



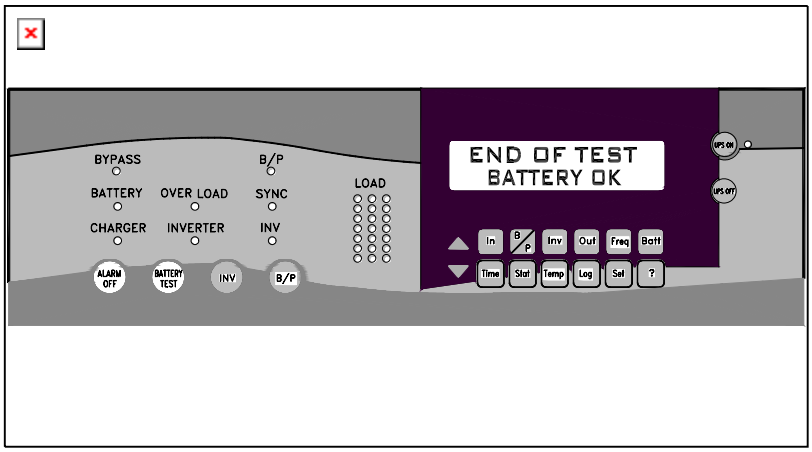
***Note**: There is no display associated with this action and the LED indicating the system fault, remains lit to continue to alert you until the problem is resolved.*

BATTERY TEST

The unit automatically and continuously checks the battery connection with the UPS. Additionally, battery checks are performed at the following times:

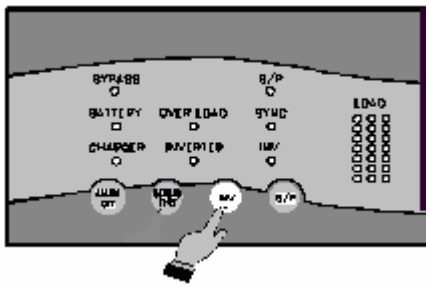
- Upon startup
- Every 200 hours of accumulated operating time
- After battery cabinet reconnection (following a disconnection)
- When manually initiated by the user

To manually initiate a battery connection test, press the BATTERY TEST button.



INV

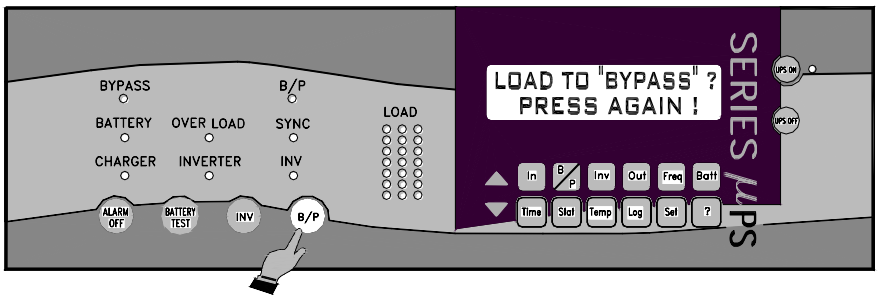
Connects the inverter within the UPS to the output, to provide power to the load.



***Note**: There is no display associated with this action.*

B/P (Bypass Function Operation)

Connects the mains to the output, placing the unit in bypass mode. The unit requires confirmation of this action. Wait approximately 2 seconds, and confirm your selection by pressing the B/P button again.



Note: This function overrides the UPS battery backup

4.3 Information Buttons

The UPS continually monitors its operational status. The user can view real-time information on the LCD by pressing the appropriate information button. Information (except for LOG and "?") appears for approximately 10 seconds, after which the LCD clears. Additionally, LEDs on the control panel provide information at a glance.

The UPS maintains an event history in its log. The log can be accessed through the information buttons or, alternatively, through the optional RS232 connection to a dedicated monitor or to a remote location via modem communications.

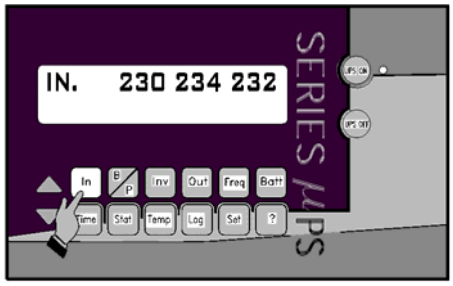
Where applicable, the LCD display provides information for R, S, and T phases and for both voltage and current.

A help utility that describes each of the unit's features and access options is available through the information buttons.

Sample LCD displays are presented below.

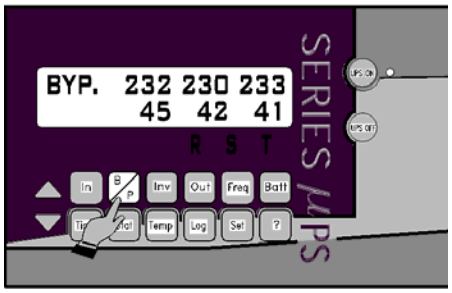
IN (Input)

Press the IN button to display the unit's real-time Input Voltage status.



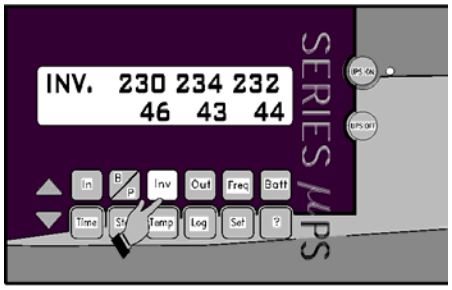
B/P (Bypass)

Press the B/P button to display the unit's bypass output voltage and current.
(Note: The bypass display will show current values only when the B/P function is activated.)



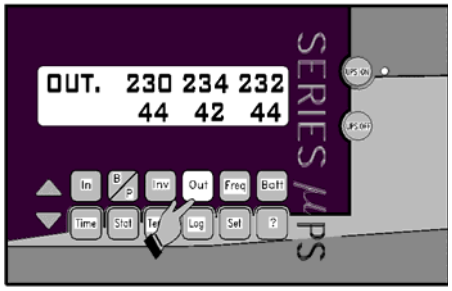
INV (Inverter)

Press the INV button to display the unit's inverter voltage and current status.



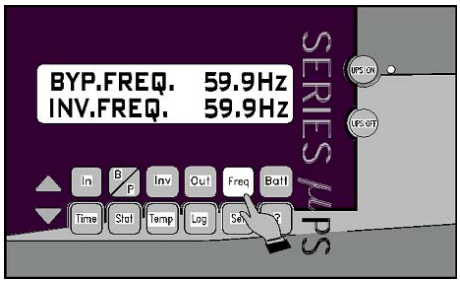
OUT (Output)

Press the OUT button to display the unit's output voltage and current regardless whether supplied by B/P or UPS inverter..



FREQ (Frequency)

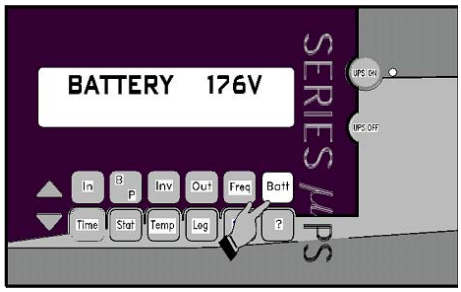
Press the FREQ button to display the unit's output and bypass frequency status.



The operating inverter frequency is determined by the bypass frequency when operating normally. Otherwise, the bypass frequency is determined by the quartz oscillator and should be set at 50/60 Hz.

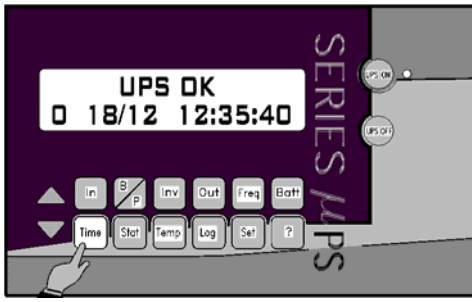
BATT (Battery)

Press the BATT button to display the battery voltage.



TIME

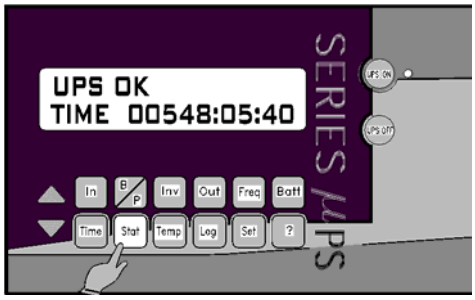
Press the TIME button to display the system current day/month (DD/MM), and current time (HH:MM:SS).



STAT (Status)

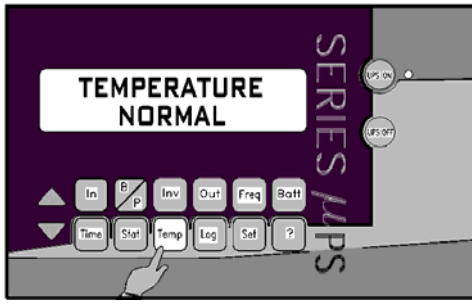
Press the STAT button to display the UPS status and accumulated working time (HHHHH:MM:SS).

Note: This is the default display mode.



TEMP (Temperature)

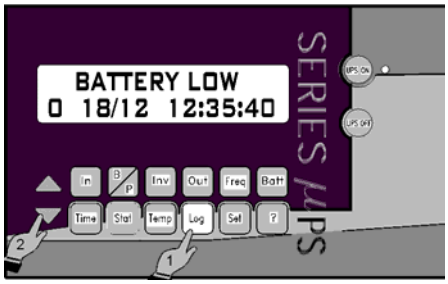
Press the TEMP button to display the status of the unit's heatsink temperature (Normal or Overheat).



LOG

Pressing the LOG button displays the event log, which contains information about the most recent extraordinary events of the mains, unit and load that occurred while the unit was operating. The log records up to 200 events.

Press the LOG button to enter Log mode.



Press the arrow buttons to scroll through the log information.

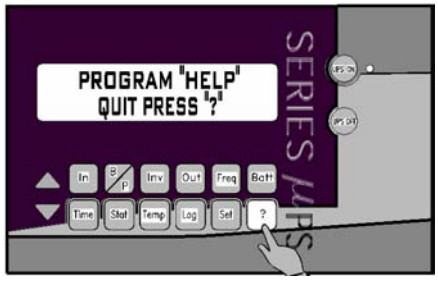
SET (Time Mode)

Sets the unit's real-time clock. Refer to Section 5.2 of this manual for detailed instructions for setting the clock.

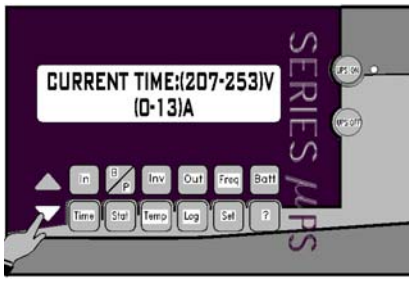
"?" (Help Button)

Provides on-line information regarding the UPS and its operational status.

Press the "?" button to enter Help mode.



Press the arrow buttons (DOWN or UP) to scroll through the information.



Exit the help program by pressing the "?" button 2 times.

4.4 LED Indicators

LED indicators provide information at a glance regarding the UPS's status or operation. They are color coded so that the user can quickly and easily identify areas of concern. Red indicates a fault or abnormal status (usually associated with an audible alarm). Green indicates normal status and operation.

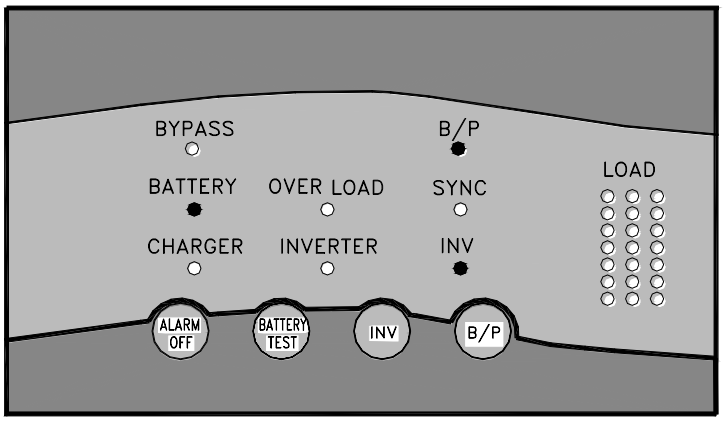


Table 5 shows a list of the LED indicators and colors.

Table 5: LED Indicators

LED	MEANING	COLOR
BYPASS	Bypass is ready for operation	Green
B/P	UPS connected to the Bypass (Battery backup not available)	Red
OVERLOAD	Overloaded output	Red
BATTERY	Batteries have low voltage or are disconnected.	Red
SYNC	Synchronized inverter	Green
CHARGER	Charger operating normally	Green
INVERTER	Inverter operating normally	Green
INV	Output connected to the inverter	Green
LOAD LEVEL	Relative load level on each phase	Green
Top LOAD LEVEL LEDs	Overload on appropriate phase	Red

5. OPERATION

5.1 Start Up

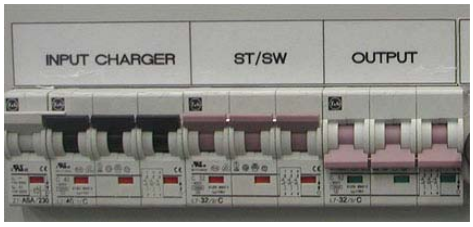
	Note: Initial UPS start-up may only be performed by Gamatronic authorized personnel

The start-up procedure described in this manual refers to normal operation startup after UPS shutdown for maintenance or after an abnormal condition has been corrected.

Follow these directions exactly as instructed. Follow prompts on the Advisory Display. Turning ON one or more of the switches too soon or in the wrong sequence may result in system failure and/or loss of power to the load.

5.1.1 To turn the UPS ON:

1. Turn the INPUT CHARGER and ST/SW CBs ON. (shown in ON position). A sequence of messages will show on the front panel display, followed by the message "SELF CHECK OK" and then "UPS OFF"
2. Press the UPS ON button on the UPS front panel. Wait approximately one minute while a sequence of messages appears on the display, followed by the message: "BATTERY NOT CONNECT"



INPUT CHARGER and ST/SW ON

3. Turn **ON** the **BATTERY C.B.** on the back of the UPS. The **BATTERY C.B.** should be in a vertical position.

BATTERY C.B. in ON position

4. The UPS performs a self-test that takes approximately 1 minute. Verify that the UPS OFF message is displayed on the LCD display panel after the self test is completed.

5. Wait approximately 40 seconds for "UPS OK" to appear on the LCD display panel.
   - Verify that the green INV LED is lit on the control panel.
   - If there is no mains or bypass input, "INPUT FAULT" appears on the LCD display panel.
   - If the bypass condition is normal, the green bypass LED is lit on the control panel indicating that the bypass function is ready for operation.

   (Note: The bypass display will show current values only when the B/P function is activated.)
   - To switch the load to bypass mode, press the B/P button on the control panel 2 times.
   - To return to the inverter output, press the INV button. (See Section 5.3)

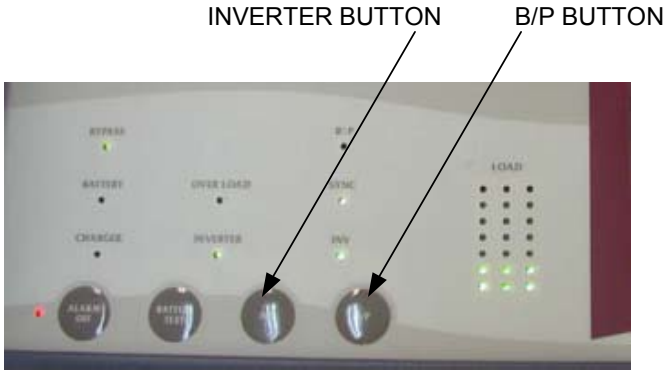


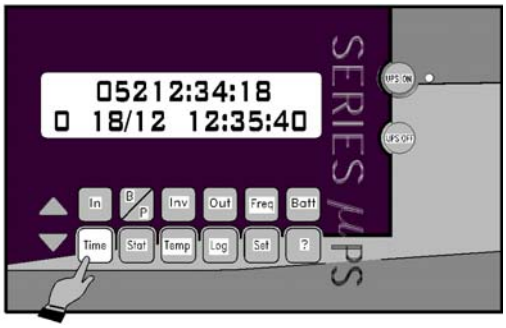
Figure 19: Inverter and B/P Buttons

5.2 Setting the Real-Time Clock

The real-time clock is composed of the ***date*** and ***time*** fields and may be set by the user. The date field contains three sub fields (DD/MM/YY) and the time field contains two sub fields (HH:MM).

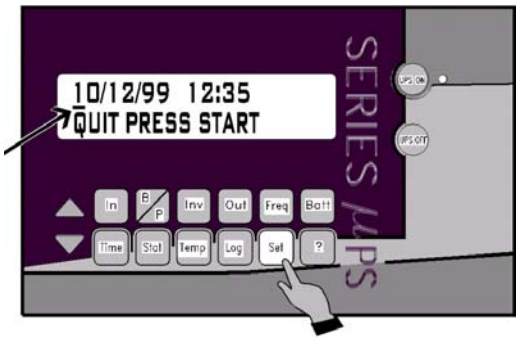
To set the real-time clock:

1. Press the TIME button to enter the time mode. The normal TIME display is shown on the LCD panel.



2. Press the SET button to initiate the time setting mode.

   Note that the flashing field indicator automatically positions itself under the date's DD field.



3. If necessary, continue pressing the SET button to increase the selected field.
4. Use the arrow buttons (UP and DOWN) to position the cursor beneath the next field to be changed.
5. Repeat steps 3-4 for each field to be changed.
6. Press the STAT button to exit the time-setting mode.

5.3 Activating/Deactivating MAINTENANCE BYPASS

The MAINTENANCE BYPASS C.B. allows the UPS to be shut down for servicing without disconnecting power from the load.

CAUTION!

NEVER turn ON the MAINTENANCE BYPASS circuit breaker without first switching the UPS to BYPASS mode (the red BYPASS light must be lit).

To activate the MAINTENANCE BYPASS mode:

6. Verify that the SYNC and BYPASS LEDs are lit on the control panel on the front of the UPS. (If they are not lit, the UPS can't go into BYPASS mode.)
7. Press twice on the B/P button on the front panel to switch the UPS to BYPASS mode (see Figure 19).
8. Verify that the red B/P LED on the UPS front panel is lit.
9. Turn ON the MAINTENANCE BYPASS circuit breaker on the back of the UPS.
10. Turn OFF the OUTPUT circuit breaker on the back of the UPS.
11. Press twice on the UPS OFF button on the control panel on the front of the UPS.
12. Turn OFF the ST/SW, CHARGER and BATTERY C.B. circuit breakers on the back of the UPS.
13. If no lights are lit on the control panel, it is possible to service the UPS.

To deactivate MAINTENANCE BYPASS and restart the UPS:

14. Verify that the OUTPUT circuit breaker on the back of the UPS is turned OFF.
15. Turn ON the CHARGER, ST/SW and BATTERY C.B. circuit breakers on the back of the UPS.
16. Verify that the message "SELF-CHECK OK" appears on the LCD on the front panel of the UPS. It is automatically followed by the message "UPS OFF".
17. Press the UPS ON button on the front of the UPS and wait approximately 40 seconds until the "UPS OK" message appears on the LCD on the UPS front panel display.
18. Press on the B/P button on the UPS front panel display, twice (see Figure 19) to put the UPS into BYPASS mode.

19. Verify that the red B/P LED on the UPS front panel is lit and that the alarm sounds.
20. Turn ON the OUTPUT circuit breaker.
21. Turn OFF the MAINTENANCE BYPASS circuit breaker.
22. Press on the INV button on the UPS front panel display (see Figure 19) to put the UPS in INVERTER mode.
23. Verify that the green INV LED on the control panel is lit and that the alarm turns OFF.

Power to the load is now supplied by the UPS.

5.4 Emergency Power Off (Optional)

Your site may contain an Emergency Power Off (EPO) switch connected to the UPS. If such a switch is installed and connected to the UPS's special dry contacts, you can press this external switch in the event of an emergency to shut OFF all power from the UPS to the loads.

If the site contains an EPO switch, make sure to verify in advance the exact location of this switch.

To emergency power OFF:

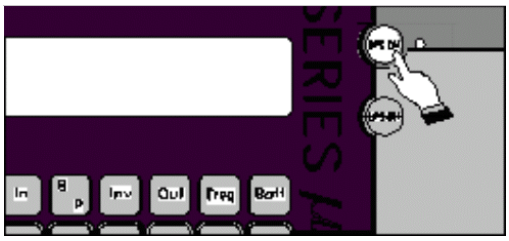
- Press in the special EPO switch.

CAUTION!

Although the loads are shut down, the UPS and internal batteries are still connected to the mains and voltage remains on the terminals and internal circuits.

To restart the UPS following Emergency Power Off:

24. Release the EPO switch. (If the EPO switch remains depressed, the UPS cannot be started up again).
25. Press the UPS ON button.



26. Wait approximately 40 seconds for “UPS OK” to appear on the LCD display panel.
    - Verify that the green INV LED on the control panel is lit.
    - If there is no mains or bypass input, “INPUT FAULT” appears on the LCD display panel.

6. COMMUNICATIONS

The UPS can be connected to a computer or a modem using a shielded cable, with an RS232C–D-type 9-pin female connector. The maximum-allowed cable length is 15 meters.

There are two types of UPS connections:

- Directly to a host computer with dedicated software.
- Remote control through an SNMP/WEB management program for computer network communications.

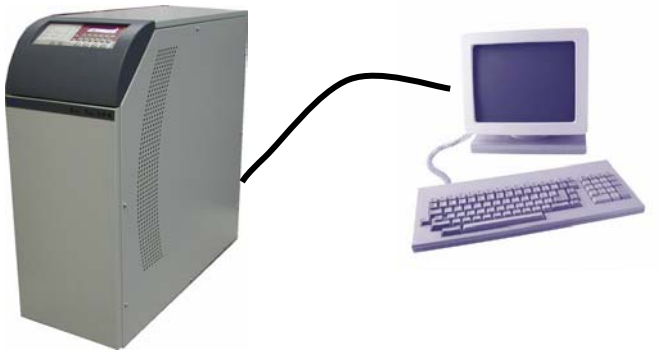


Figure 20: Local Direct Connection

6.1 RS232 Interface

The UPS supports standard RS232 protocol. Full information about the status of the UPS, the value of its parameters, and the memory events log is displayed on a user-friendly graphic interface. The graphic interface also allows you to use the host computer to execute a set of instructions for the UPS that includes shutdown, restart, battery check, etc.

Communications parameters:

2400 Baud rate

No parity

1 stop bit

No flow control

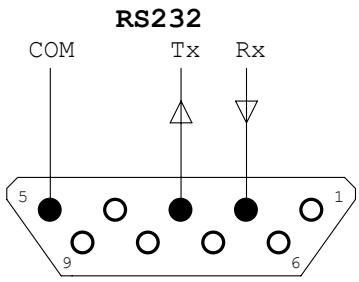


Table 6: RS232 Connector Pin Assignment

SIGNAL	UPS
RD	2
TD	3
GND	5

7. ALARM INTERFACE

The following diagram describes the alarm interface.

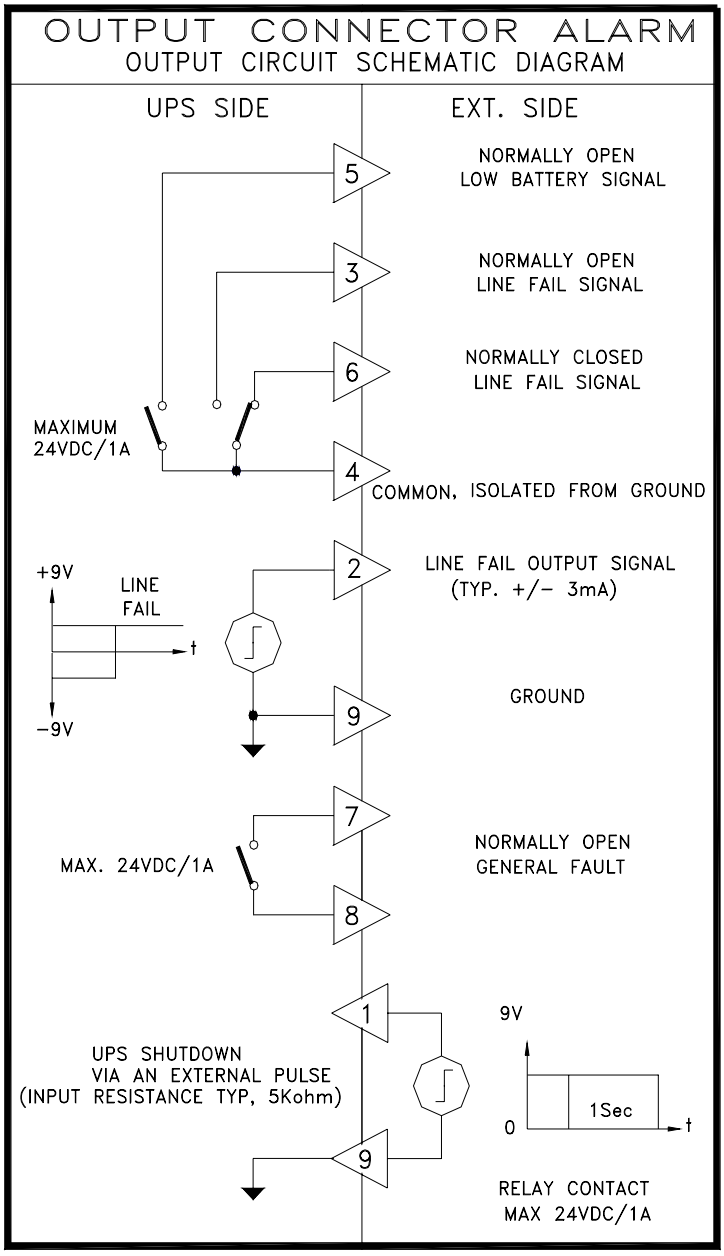


Figure 21: Alarm Interface

8. TROUBLESHOOTING

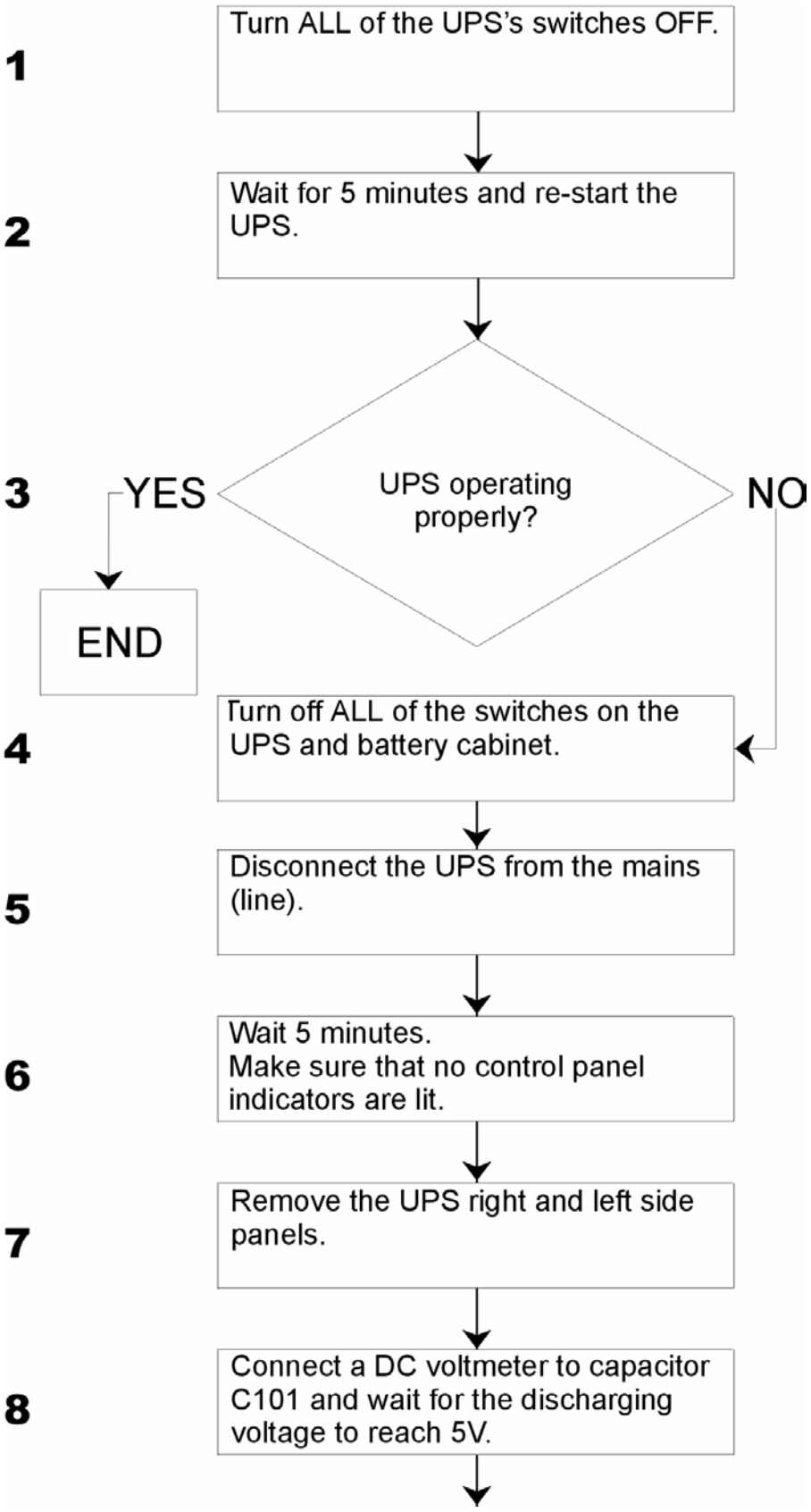
If the unit stops operating normally, a red LED (ALARM) flashes, a warning beep sounds, and one of the following emergency messages appears on the display panel:

Table 7: Alarm Messages

MESSAGE	LED's & BUZZER	STATE	ACTION
FAULT CONDITION ! SERVICE REQUIRED	--	Self-test has a negative result	Call service technician
UPS OFF	--	UPS device is OFF	Press the ON switch to activate the UPS
UPS OFF INPUT IS LOW	--	Unit cutoff due to power failure not yet recovered	Check charger switch on unit & at power cabinet
BATTERY UNDER LOAD	Beeps every 4 seconds	Power failure. Inverter operating on batteries	Shut down all load/devices
BYPASS VOLT FAULT	B/P LED not lit	Bypass failure	Check the static switch
LOAD TRANSFERING PLEASE WAIT	Load on B/P LED is lit	Switch over from inverter to bypass and then back to inverter. (Takes approx. 40 sec.)	--
LOAD TRANSFERING PLEASE WAIT (Displayed for more than 3 sec.)	Load on B/P INV LED is not lit	Defective Inverter	Call service technician
INVERTER FAULT	INV LED is not lit	Defective Inverter	Call service technician
BATTERY LOW	Battery LED is lit	Batteries fail to pass the test	Repeat test after 2 hrs. If test still fails, call service technician
RECTIFIER FAULT	---	Defective Charger or faulty batteries	Call service technician
---	SYNCHR LED is not lit	Inverter is not synchronized	Call service technician
OVERLOAD	Overload LED is lit	Overload	Correct loads
ANY OTHER MESSAGE	Continuous beep	Call service technician	
NO MESSAGES			Restart unit

In the event that the unit has stopped operating in a normal manner, and the display panel is not functioning, the technician should perform the following procedures.

***Note**: The following procedures are relevant in cases where the unit is not operating normally and there are no LCD display panel messages.* These procedures are to be performed **ONLY BY A TRAINED TECHNICIAN**.


1
Turn ALL of the UPS's switches OFF.
2
Wait for 5 minutes and re-start the UPS.
3
YES
UPS operating properly?
NO
END
4
Turn off ALL of the switches on the UPS and battery cabinet.
5
Disconnect the UPS from the mains (line).
6
Wait 5 minutes.
Make sure that no control panel indicators are lit.
7
Remove the UPS right and left side panels.
8
Connect a DC voltmeter to capacitor C101 and wait for the discharging voltage to reach 5V.

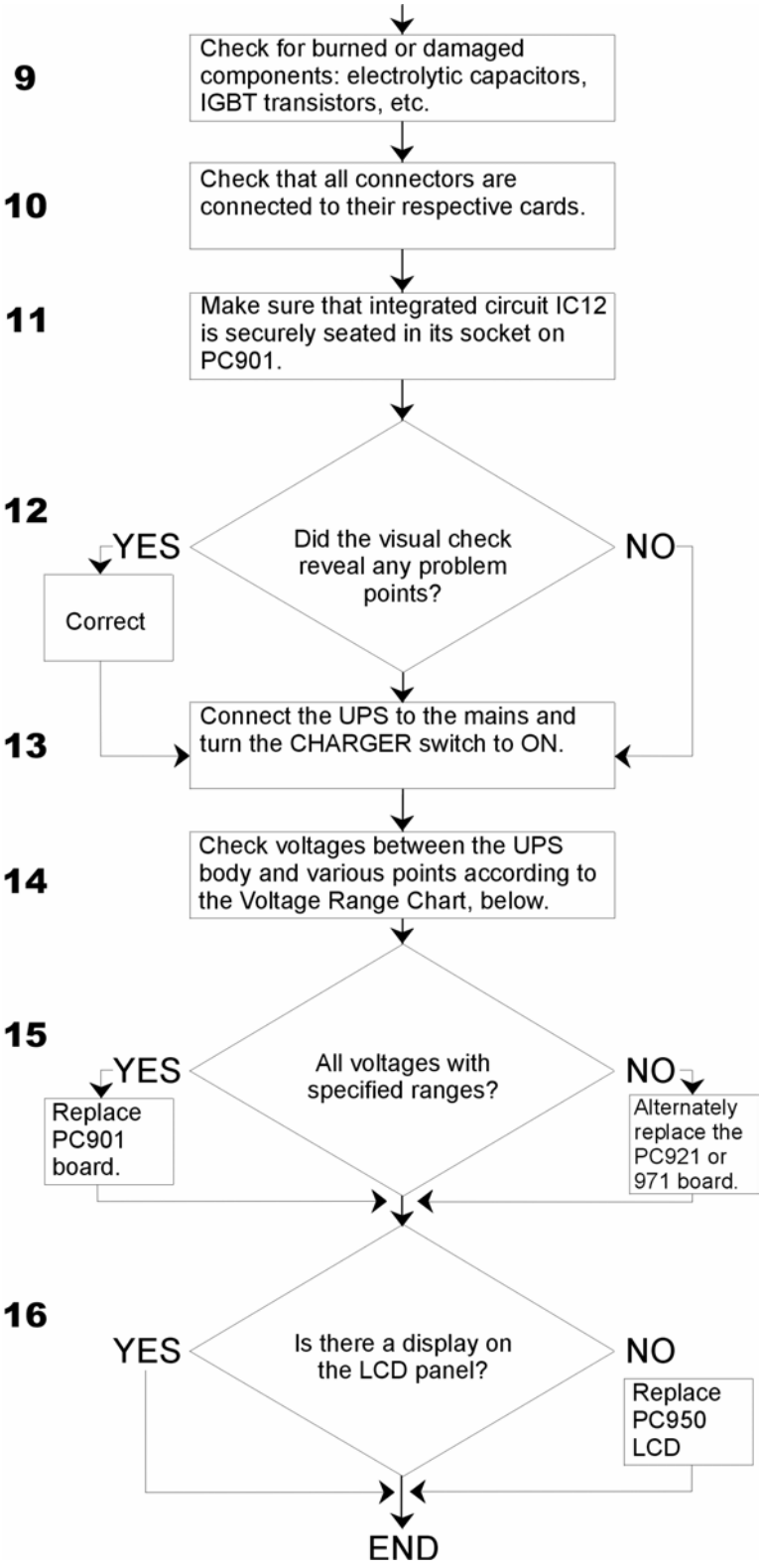

9
Check for burned or damaged components: electrolytic capacitors, IGBT transistors, etc.
10
Check that all connectors are connected to their respective cards.
11
Make sure that integrated circuit IC12 is securely seated in its socket on PC901.
12
Did the visual check reveal any problem points?
YES
Correct
NO
13
Connect the UPS to the mains and turn the CHARGER switch to ON.
14
Check voltages between the UPS body and various points according to the Voltage Range Chart, below.
15
All voltages with specified ranges?
YES
Replace PC901 board.
NO
Alternately replace the PC921 or 971 board.
16
Is there a display on the LCD panel?
YES
NO
Replace PC950 LCD
END

Table 8: PC Board Check Points & Voltage Ranges

BOARD	CHECK POINT	VOLTAGE
PC 901	IC12/28	5V ± 5%
PC 971	IC10/8	12V ± 5%
PC 971	IC10/4	12V ± 20%

9. TECHNICAL SPECIFICATIONS

Technical Specifications	
INPUT	
3 Phase	3 x 208 Vac
Voltage range	+10%-20%
Frequency	57 - 63Hz
Power walk-in	12 sec.
Required ext. MCB (A) : (1)	3 x 40
Input PF	0.97
OUTPUT	
Voltage (V)	3 X 208 Vac
Power	10kVA/8Kw
Efficiency	>87%
Dissipation at full load	880W/260BTU
Voltage regulation	± 1%
Frequency tracking range	± 1, ± 2, ± 3Hz (selectable)
Slew rate	1 Hz/sec.
Overload 125% 150%	10 minutes 30 seconds
Load P.F.	0.8
Waveform	Sinusoidal
Crest factor	3:1
Total harmonic distortion	Less than 2% (at linear load)
Protection	Overload and short circuit
Dynamic response to 100% load change	2%
Transition time : To and from line	Less than 0.5 ms
Phase deviation	Balanced load ± 1°
Rejection ratio	More than 100 dB
Leakage current	< 3mA
BACKUP OPERATION	
Backup time	45Mins @ 2KW
DC voltage	176Vdc
Batteries (internal)	13 × 12Vdc 20Ah Sealed Lead-Acid
Battery recharge time	Approximately 6-8 hours
Expected battery life	10-12 years
COMMUNICATION OPTIONS	
RS232C	Shutdown, monitor
Alarm	Shutdown software
Remote indication panel	Optional
SNMP	Included
Speech dialer	Optional

Technical Specifications	
LCD DATA	
Input	Voltage
Output & Inverter	Voltage (current – optional)
Bypass	Voltage & frequency
Batteries	Voltage
Temperature	Heatsink
Log (events memory)	Last 200 events
ENVIRONMENT & OTHER	
Ambient temperature: Operating Storage	 -10 to 38 ^{o} C -20 to 60 ^{o} C
Relative humidity	95% max., non-condensing
Altitude	1500m w/o derating
EMC conformity	FCC Part 15
CCSAUS approval	CSA C22.2 No. 107.3-003 UL 1778 – 3rd Ed.
MTBF (Without Batteries)	250000
Audible noise (dB) @ 1.5m	< 55
DIMENSIONS	
Height (cm)	95
Width (cm)	41
Depth (cm)	84
Weight (kg) (With Batteries)	290

For service, please call your Gamatronic authorized service representative.

10. GMAC (GAMATRONIC MANAGEMENT CARD)

10.1 General

The Gamatronic Management Card (GmaC) for UPS and DC power systems allows you to continuously monitor and control systems connected to your computer from a local or a remote location via SNMP. It allows real-time detection of power system faults and immediately notifies selected recipients (control center, technician, etc.) about the faults.

GMaC can operate through a variety of parallel connections, protocols and applications at the same time (in parallel). It is compatible with all Gamatronic products, as well as with the products of other manufacturers.

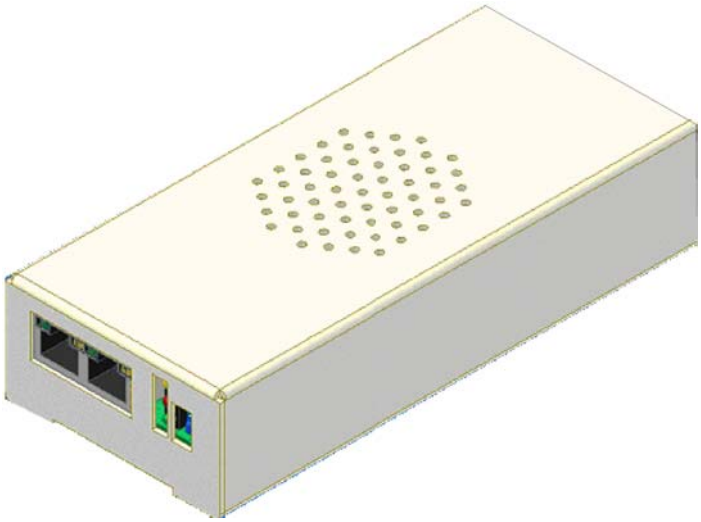


Figure 22: Gamatronic Management Card

10.1.1 Table of Specifications

Table 1A: GMaC Specifications

Feature	Description
Devices	All UPS and DC power systems
Communication	SNMP, MODEM, Serial connection RS232, TCP/IP, PPP
Optional Communications	GSM, CDMA, BT communication
Operating System	PSOS
NMS	All familiar NMS
Required Hardware	Serial Interface of UPS, Standard MIB support
Features	2 Ethernet Interfaces 2 RS232 Interfaces 4 MB flash memory Network failure auto detect and recovery

10.2 The Management Card

The GMaC is installed inside the 10kVA (see Figure 1A) and is connected directly to the LAN or the PC serial port.

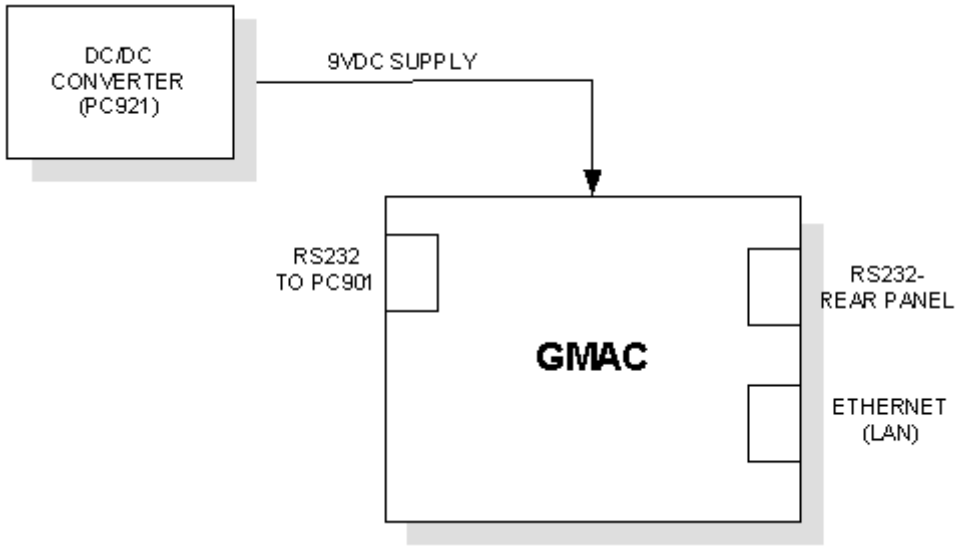


Figure 23: GMAC Internal Connections

Figure 24 shows the GMaC communication sockets, located on the UPS rear panel.

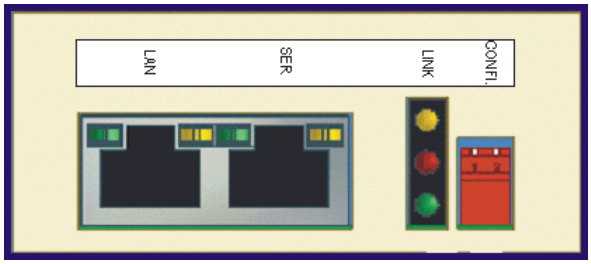
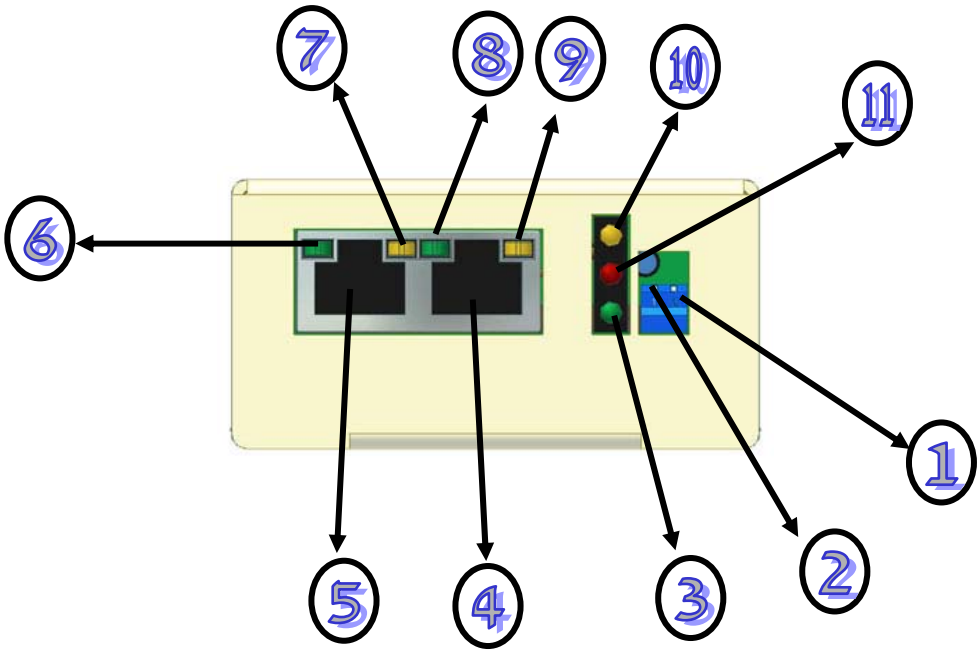


Figure 24: GMaC Connection



1. DIP Switch circuit breaker (right - not operative)
2. DIP Switch circuit breaker (left) has two modes)
   a. Upper circuit breaker - mode of the card/UPS via the panel
   b. Lower circuit breaker - Normal working mode with an internal UPS
3. Communication indicators - two modes:
   a. Short blinks - broadcasting to the UPS/ external USP configuration.
   b. Longer blinks - broadcasting an answer
4. RJ45 connector configuration of external UPS or Sec Protocol.
5. RJ45 connector - 10baseT Ethernet
6. LINK indicator
7. Active indicator
8. Indicator for Serial communication
9. Indicator for Serial communication
10. Not in use
11. Not in use

12. ***RS-232 (rear panel). Not shown in this drawing.

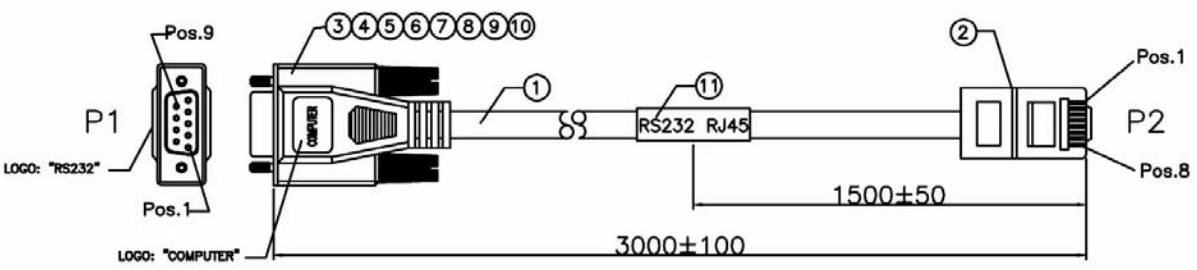
10.3 GMaC Configuration

10.3.1 Serial Configuration of GMaC

To configure the card:

1. Lift the left DIP Switch to put the card into Configuration Mode.
2. Connect the computer to the card via the UPS rear panel RS232 connector with the cable Female Serial→RJ45 as shown in the following diagram:

1.



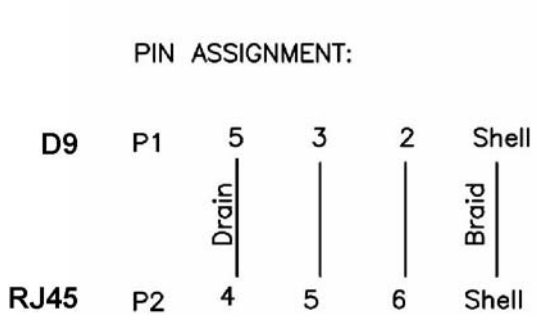


Figure 25: Cable Female Serial→RJ45

10.3.2 GMaC Ethernet Configuration

GMaC comes with a factory default IP address (192.168.0.182). In order for the computer to connect to this address, its IP address must be in the same IP zone as the GMac (ex. 192.168.0.100).

If necessary, change the computer's IP address, in the computer's Local Area Connection Properties window.

To open this window:

WIN2000/XP

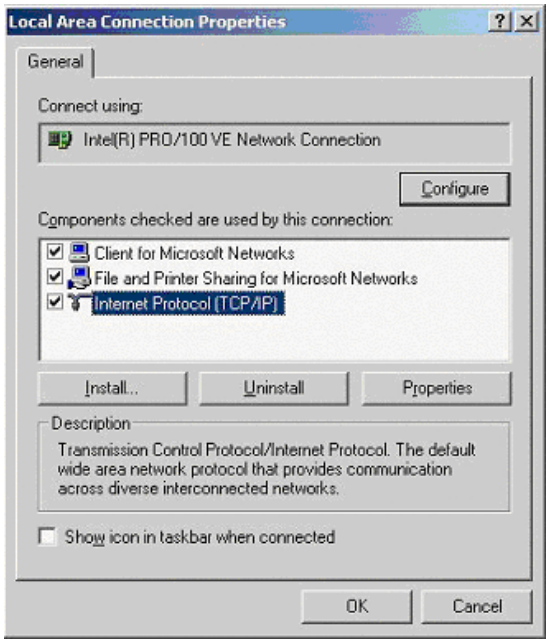
1. Click Start menu > Settings> Network and Dialup Connections.
2. Right-click Local Area Connection> Properties.

WIN 95/98

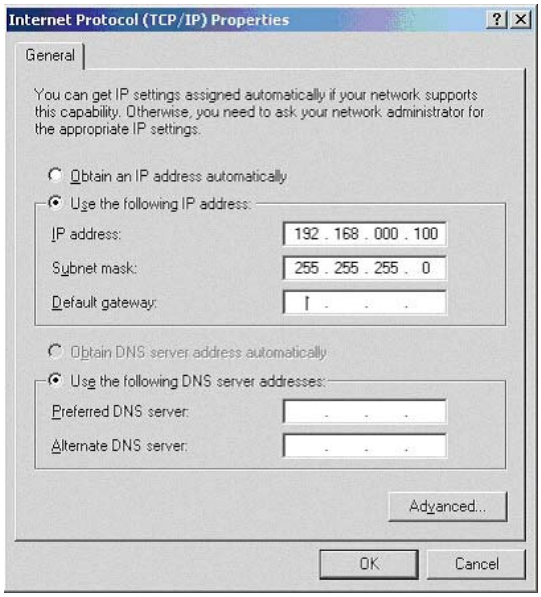
1. Click **Start** menu > **Settings**> **Control Panel**.
2. Double-click the Network icon.

To change the computer's IP address in the Local Area Connection Properties window:

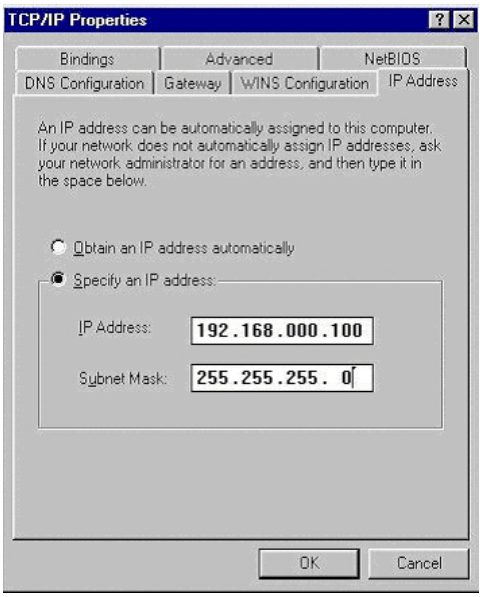
1. Select the Internet Protocol (TCP/IP).
2. Click the **Properties** button:
   - In Win2000/XP, the Internet Protocol (TCP/IP) Properties window appears.
   - In Win95/98, the TCP/IP Properties window appears.



Win 2000/XP


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 000 . 100
Subnet mask: 255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Win 95/98


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address: 192.168.000.100
Subnet Mask: 255.255.255. 0
OK
Cancel

3. **Select Use the following IP address***:*

4. In the **IP address** field, type 192.168.0.100.
5. In the **Subnet mask** field type 255.255.255.0.
6. The **Default gateway** field can be left empty.
7. Click **OK** in the **TCP/IP Properties** window.
8. Click **OK** in the **Local Area Connection** window.
9. Restart the computer (Win 95-98 only).

3. Click the IP Address tab and select **Specify an IP address***:*

To check the computer's IP address:

1. On the **Start** menu, click **Run**.
2. In the **Open** field, type command.
3. In the **Command** window, type:
   - `ipconfig` (Win2000/XP)
   - `winipcfg` (Win 95/98)

To connect the GMaC to the computer:

1. Insert one end of the crossed network cable into the computer's network card outlet.
2. Insert the other end of the crossed network cable into the GMaC (LAN) outlet.
3. Verify that the two DIP Switches on the GMaC are **ON** (down position).

10.3.3 Network Card Configuration Wizard

To configure the communications card, use the Network Card Configuration Wizard program, and follow the installation instructions displayed on the screens. This program is located on the GMaC diskette and is automatically activated when the diskette is inserted in the computer drive.

***Note*:** *The card contains the following factory-set network settings, which you can change when configuring the card:*

- *IP address: 192.168.0.182*
- *Gateway: 192.168.0.254*
- *Mask: 255.255.255.0*

To Configure the Network Card:

Follow the instructions on each of the following screens. After filling in the fields with the appropriate information, click **Next** to continue to the next screen.

Screen 1: Welcome

This screen appears when the program opens.

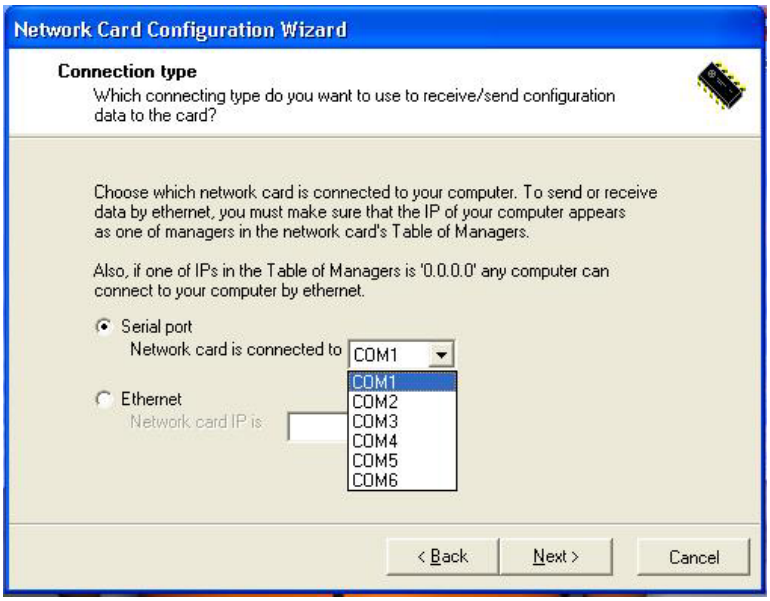
*(**Note**: If you click the **View Last Known Configuration** button, a window appears containing the last IP gateway and mask that was sent by the program to GMaC.)*

Network Card Configuration Wizard
GAMATRONIC
Welcome to the Network Card Configuration Wizard
With the help of this application you can configure the network card to communicate properly with computers via ethernet
Changing a configuration setting on the network card can cause loss of communication with managers and trap targets.
View Last Known Configuration
To continue, click Next.
< Back
Next >
Cancel

Screen 2: Connection Type

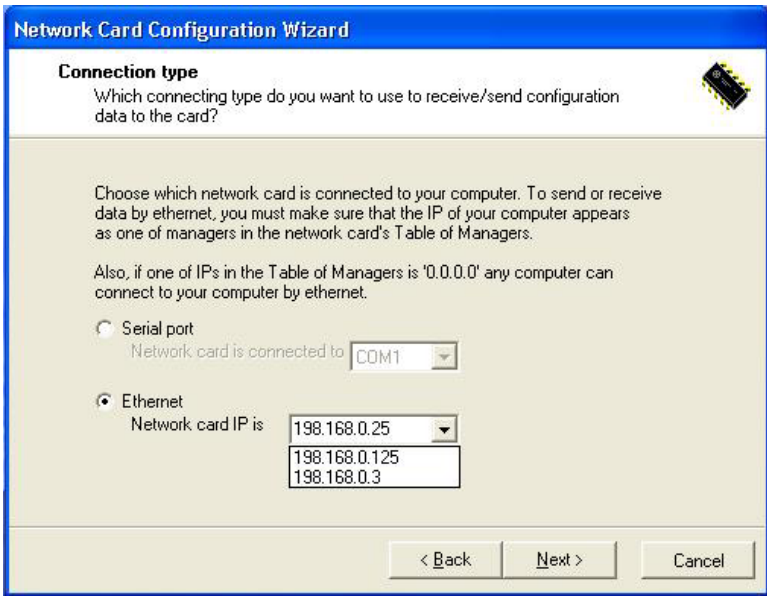
Select the type of connection: **Serial** or **Ethernet**.

If you selected **Serial,** select the Com port to which you are connected.


Network Card Configuration Wizard
Connection type
Which connecting type do you want to use to receive/send configuration data to the card?
Choose which network card is connected to your computer. To send or receive data by ethernet, you must make sure that the IP of your computer appears as one of managers in the network card's Table of Managers.
Also, if one of IPs in the Table of Managers is '0.0.0.0' any computer can connect to your computer by ethernet.
Serial port
Network card is connected to
COM1
COM1
COM2
COM3
COM4
COM5
COM6
Ethernet
Network card IP is
< Back
Next >
Cancel

Screen 2: Connection Type

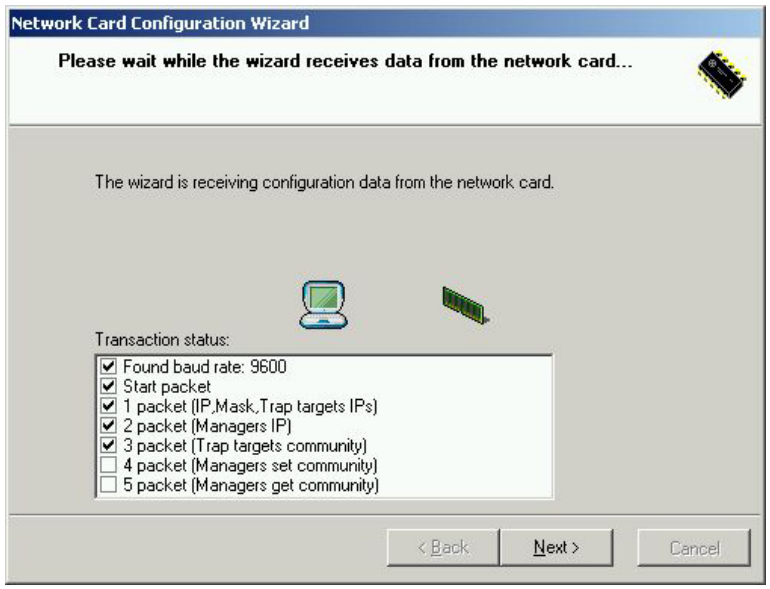
If you selected **Ethernet,** type in the card's IP address.


Network Card Configuration Wizard
Connection type
Which connecting type do you want to use to receive/send configuration data to the card?
Choose which network card is connected to your computer. To send or receive data by ethernet, you must make sure that the IP of your computer appears as one of managers in the network card's Table of Managers.
Also, if one of IPs in the Table of Managers is '0.0.0.0' any computer can connect to your computer by ethernet.
Serial port
Network card is connected to
COM1
Ethernet
Network card IP is
198.168.0.25
198.168.0.125
198.168.0.3
< Back
Next >
Cancel

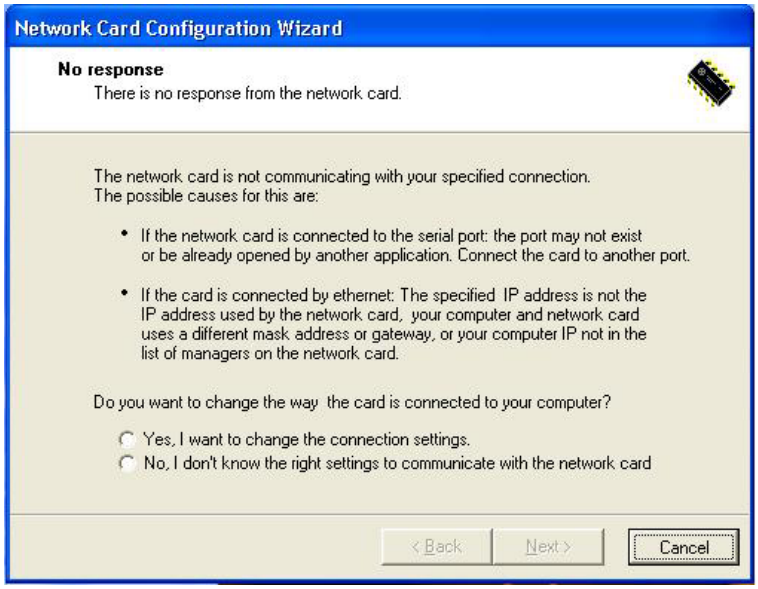
Screen 3:

If the connection is successful, this screen is displayed until the computer receives data from card and the Network setting screen appears.

*Note: The **Transaction Status** field on appears in Com Mode.*


Network Card Configuration Wizard
Please wait while the wizard receives data from the network card...
The wizard is receiving configuration data from the network card.
Transaction status:
Found baud rate: 9600
Start packet
1 packet (IP,Mask,Trap targets IPs)
2 packet (Managers IP)
3 packet (Trap targets community)
4 packet (Managers set community)
5 packet (Managers get community)
< Back
Next >
Cancel

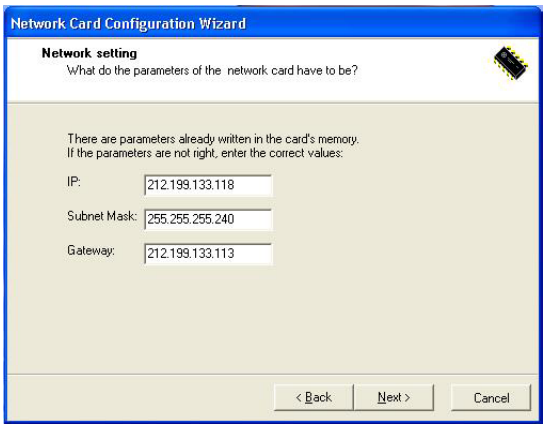
Screen 3: No Response


Network Card Configuration Wizard
No response
There is no response from the network card.
The network card is not communicating with your specified connection.
The possible causes for this are:
If the network card is connected to the serial port: the port may not exist or be already opened by another application. Connect the card to another port.
If the card is connected by ethernet: The specified IP address is not the IP address used by the network card, your computer and network card uses a different mask address or gateway, or your computer IP not in the list of managers on the network card.
Do you want to change the way the card is connected to your computer?
Yes, I want to change the connection settings.
No, I don't know the right settings to communicate with the network card
< Back
Next >
Cancel

This screen appears if there is a connection problem. It offers two possible solutions:

- Return to the previous screen **(Yes, I want to change connection settings)**.
- Exit the program **(No, I don't know the right settings to communicate with the network card)**.

Screen 4: Network Setting



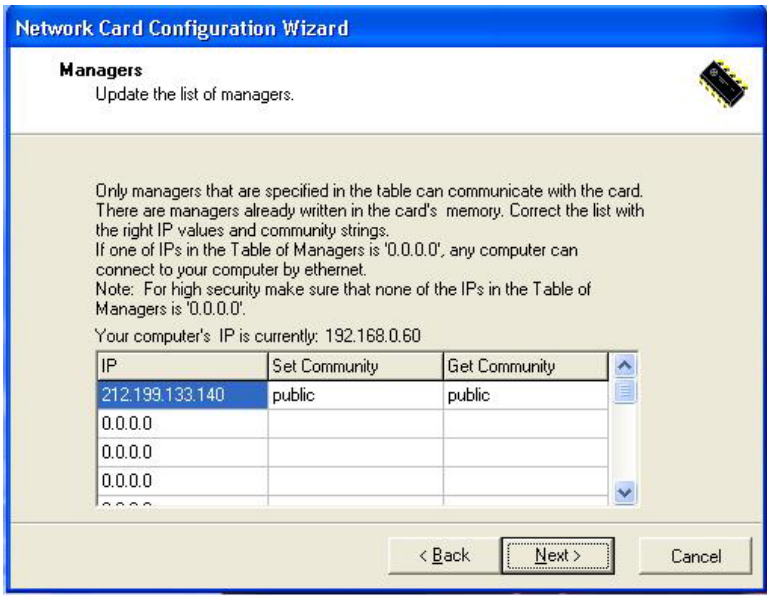
This screen enables you to monitor and modify the power system's network parameters according to local network policies. It contains the following fields:

IP: the system's legal address

Subnet Mask: the power system's address on the local network

Gateway: the gateway's address to the local network.

Screen 5: Managers

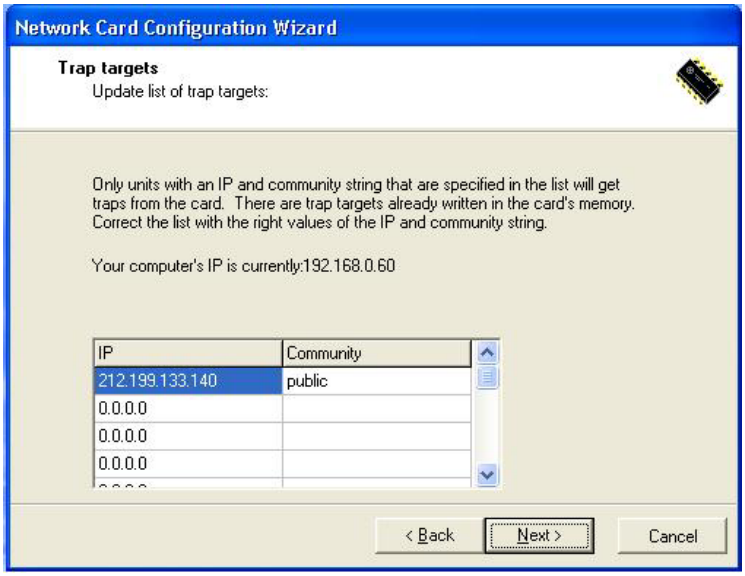

Network Card Configuration Wizard
Managers
Update the list of managers.
Only managers that are specified in the table can communicate with the card.
There are managers already written in the card's memory. Correct the list with the right IP values and community strings.
If one of IPs in the Table of Managers is '0.0.0.0', any computer can connect to your computer by ethernet.
Note: For high security make sure that none of the IPs in the Table of Managers is '0.0.0.0'.
Your computer's IP is currently: 192.168.0.60
IP
Set Community
Get Community
212.199.133.140
public
public
0.0.0.0
0.0.0.0
0.0.0.0
< Back
Next >
Cancel

This screen determines who has permission to communicate with the UPS. It contains the following fields:

- **IP:** Address of each manager's computer
- **Set Community**: Degree to which each manager can control the system
- **Get Community**: Degree to which each manager can monitor the system

***Note**: If the first row contains the values 0.0.0.0. / private / public, anyone can connect to the UPS.*

Screen 6: Trap targets

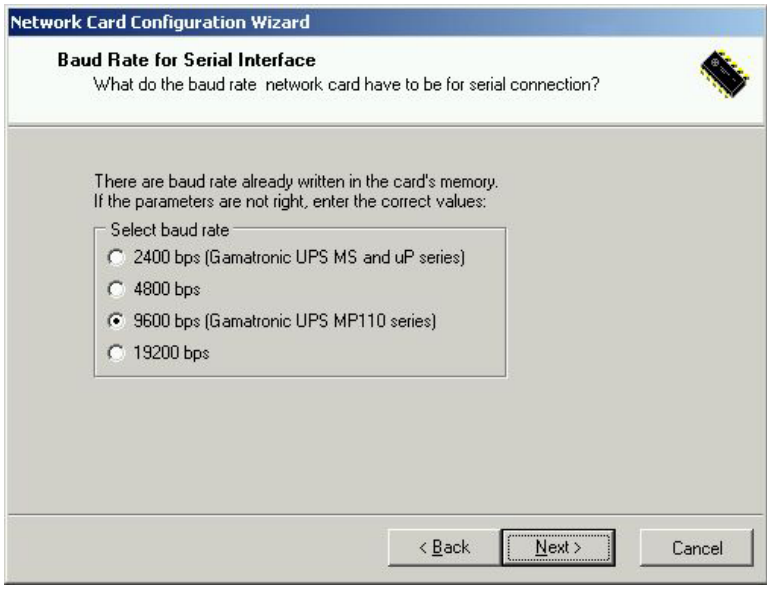

Network Card Configuration Wizard
Trap targets
Update list of trap targets:
Only units with an IP and community string that are specified in the list will get traps from the card. There are trap targets already written in the card's memory. Correct the list with the right values of the IP and community string.
Your computer's IP is currently:192.168.0.60
IP
Community
212.199.133.140
public
0.0.0.0
0.0.0.0
0.0.0.0
< Back
Next >
Cancel

Sets which users can receive traps from the UPS in case of a fault. It contains the following fields:

- **IP:** the user's computer address
- **Community:** degree to which the user has permission to use the system

Screen 7: Baud Rate for Serial Interface

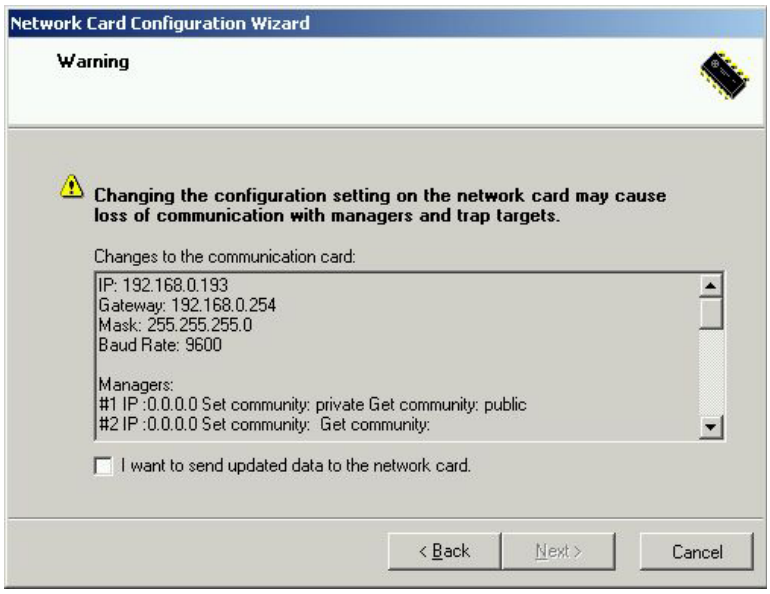
Allows you to change the card's baud rate.


Network Card Configuration Wizard
Baud Rate for Serial Interface
What do the baud rate network card have to be for serial connection?
There are baud rate already written in the card's memory.
If the parameters are not right, enter the correct values:
Select baud rate
2400 bps (Gamatronic UPS MS and uP series)
4800 bps
9600 bps (Gamatronic UPS MP110 series)
19200 bps
< Back
Next >
Cancel

Screen 8: Warning

Appears if parameters have been changed on the previous screens.

To confirm the changes and send them from the computer to the card, select **I want to send updated data to the network card.**


Network Card Configuration Wizard
Warning
Changing the configuration setting on the network card may cause loss of communication with managers and trap targets.
Changes to the communication card:
IP: 192.168.0.193
Gateway: 192.168.0.254
Mask: 255.255.255.0
Baud Rate: 9600
Managers:
#1 IP :0.0.0.0 Set community: private Get community: public
#2 IP :0.0.0.0 Set community: Get community:
I want to send updated data to the network card.
< Back
Next >
Cancel

***Note**: If there is a breakdown in communications or if it isn't possible to send the data to the card for any reason, Screen 3, **No Response**, appears.*

Screen 9: Completing the Network Card Configuration Wizard

Appears after the data is received by the card.

Click **Finish** to end the card configuration.

After configuring the card:

1. Lower the left DIP SWITCH circuit breaker to working mode.
2. **Ping** the card's configured IP address to check it.

10.3.4 Checking GMaC Communication

To check that the GMaC is communicating properly:

1. In the **Start** menu, click **Run**.
2. In the **Open** field, type: `command`.
3. In the **Command** window, type: `ping 192.168.0.182`.

   Three data packages are sent to the GMaC.
4. If the three Request time out messages are returned:
   - Check the connection to the GMaC
   - Verify that the computer's IP address is in the same IP Zone as the GMaC's.
5. If there is a reply (i.e. 'Reply from 192.168.0.182: bytes =32 time<10ms TTL=255'), the configuration is successful.

***Note**: We highly recommend that you record all IP configuration settings and store them in a readily accessible place.*

In the event that configuration settings are lost, you must reconfigure the GMaC step-by-step, using an RS232 communication cable, using the Network Card Communication Wizard, as explained above.